



FEDERAL  
COMMUNICATIONS  
COMMISSION

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Rules and  
Regulations

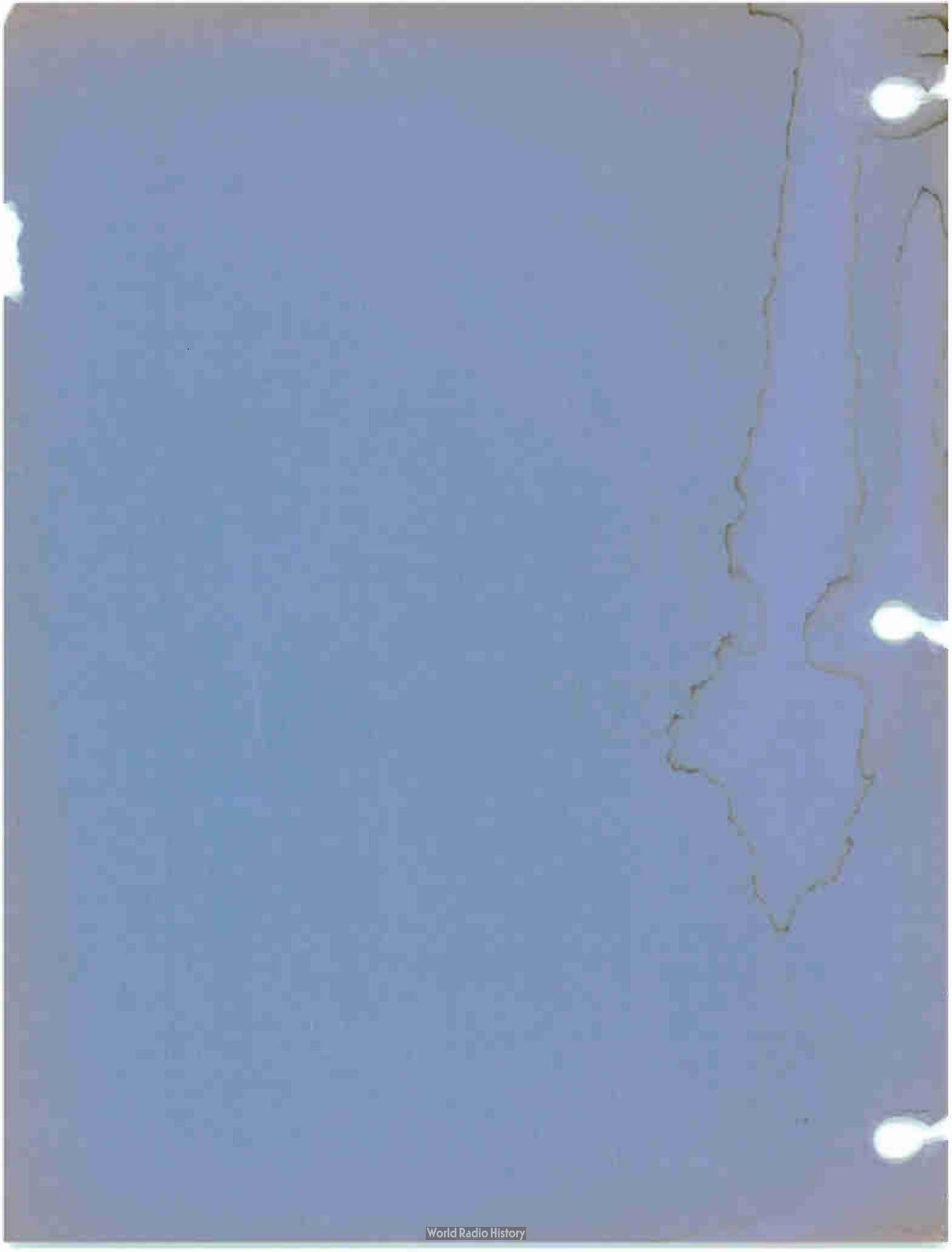
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VOLUME III • MARCH 1980

*Updated with transmitted sheet No. 6-7-82*

*Part 73—Radio Broadcast Services.*

*Part 74—Experimental, Auxiliary, and Special Broadcast,  
and Other Program Distributional Services.*







# *Introduction*

Volume III of the Federal Communications Commission's Rules and Regulations contains all the rules for Radio Broadcast Services; Experimental, Auxiliary, and Special Broadcast, and Other Program Distributional Services. This edition is a revision of the August 1976 issue and includes all amendments adopted by the Commission through March 1980. Subsequent changes will be issued as substitute pages to the volume.

When this volume is amended, the number of the transmittal sheet covering the substitute pages will appear in the lower corner of each page. Substitute pages incorporating amendments to these rules will be mailed by the Superintendent of Documents, without request, to all purchasers of the volume.

This volume supersedes the edition of August 1976, and no further amendments to that edition will be issued.

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## *FCC Field Offices*

Mailing addresses for Commission Field Offices are set forth in § 0.121 of this chapter. Street addresses of the offices listed below can also be found in local directories under "United States Government."

### **FIELD OFFICES**

Address all communications to Engineer in Charge, FCC

Alabama, Mobile 36602  
Alaska, Anchorage (P.O. Box 644) 99501  
California, Los Angeles 90012  
California, San Diego 92101  
California, San Francisco 94111  
California, San Pedro 90731  
Colorado, Denver 80202  
District of Columbia, Washington 20554  
Florida, Miami 33130  
Florida, Tampa 33602  
Georgia, Atlanta 30303  
Georgia, Savannah (P.O. Box 8004) 31402  
Hawaii, Honolulu 96808  
Illinois, Chicago 60604  
Louisiana, New Orleans 70130

Maryland, Baltimore 21202  
Massachusetts, Boston 02109  
Michigan, Detroit 48226  
Minnesota, St. Paul 55101  
Missouri, Kansas City 64106  
New York, Buffalo 14203  
New York, New York 10014  
Oregon, Portland 97204  
Pennsylvania, Philadelphia 19106  
Puerto Rico, San Juan (P.O. Box 2987) 00903  
Texas, Beaumont 77701  
Texas, Dallas 75202  
Texas, Houston 77002  
Virginia, Norfolk 23510  
Washington, Seattle 98104

### **COMMON CARRIER FIELD OFFICES**

Address all communications to Chief, Common Carrier Field Office, FCC

Missouri, St. Louis 63102  
New York, New York 10007

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# Notice

The FCC Rules and Regulations are grouped into ten volumes and sold in volume units by the Superintendent of Documents, Government Printing Office. The price of the volume entitles the purchaser to receive its amended pages for an indefinite period.

The ten volumes are comprised of individual Parts, as follows:

## VOLUME I

- Part 0, Commission Organization
- Part 1, Practice and Procedure
- Part 13, Commercial Radio Operators.
- Part 17, Construction, Marking, and Lighting of Antenna Structures.
- Part 19, Employee Responsibilities and Conduct.

## VOLUME II

- Part 2, Frequency Allocations and Radio Treaty Matters; General Rules and Regulations.
- Part 5, Experimental Radio Services (Other Than Broadcast).
- Part 15, Radio Frequency Devices.
- Part 18, Industrial, Scientific, and Medical Equipment.

## VOLUME III

- Part 73, Radio Broadcast Services.
- Part 74, Experimental Auxiliary, and, Special Broadcast and Other Program Distributional Services.

## VOLUME IV

- Part 81, Stations on Land in the Maritime Services and Alaska-Public Fixed Stations.
- Part 83, Stations on Shipboard in the Maritime Services.

## VOLUME V

- Part 87, Aviation Services.
- Part 90, Private Land Mobile Radio Services.
- Part 94, Private Operational-Fixed Microwave Service.

## VOLUME VII

- Part 20, Public Mobile Radio Services.
- Part 21, Domestic Public Radio Fixed Service.
- Part 23, International Fixed Public Radio-communication Services.
- Part 25, Satellite Communications.

## VOLUME VIII

- Part 31, Uniform System of Accounts for Class A and Class B Telephone Companies.
- Part 33, Uniform System of Accounts for Class C Telephone Companies.

## VOLUME IX

- Part 34, Uniform System of Accounts for Radiotelegraph Carriers.
- Part 35, Uniform System of Accounts for Wire-Telegraph and Ocean-Cable Carriers.

## VOLUME X

- Part 41, Telegraph and Telephone Franks.
- Part 42, Preservation of Records of Communication Common Carriers.
- Part 43, Reports of Communication Common Carriers and Certain Affiliates.
- Part 51, Occupational Classification and Compensation of Employees of Telephone Companies.
- Part 52, Classification of Wire-Telegraph Employees.
- Part 61, Tariffs.
- Part 62, Applications to Hold Interlocking Directorates.
- Part 63, Extension of Lines and Discontinuance of Service by Carriers.
- Part 64, Miscellaneous Rules Relating to Common Carriers.
- Part 66, Applications Relating to Consolidation, Acquisition, or Control of Telephone Companies.
- Part 67, Jurisdictional Separations.
- Part 68, Connection of Terminal Equipment to the Telephone Network.

## VOLUME XI

- Part 76, Cable Television Service.
- Part 78, Cable Television Relay Service.

NOTE: Part 95, Personal Radio Services, Part 97, Amateur Radio Service, and Part 99, Disaster Communications Service, are available as separate publications from the Government Printing Office, Washington, D.C. 20402. Part 95 is published as four

separate pamphlets, each governing a different subpart of the Rules. Parts 97 and 99 are also available as separate booklets. These Rule Parts can be ordered by mail from the Government Printing Office, or can be purchased at GPO bookstores.

# RULES AND REGULATIONS

Part 73

*Radio Broadcast Services*

MARCH 1980

**FEDERAL COMMUNICATIONS COMMISSION**





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AUTHORITY: Secs. 1, 4 (1) and (o), and 303(r), Communications Act of 1934 as amended.

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## SUBPART A—AM BROADCAST STATIONS

### DEFINITIONS

#### § 73.1 AM broadcast station. (Definition)

The term "AM broadcast station" means a broadcast station licensed for the dissemination of radio communications intended to be received by the public and operated on a channel in the band 535–1605 kilohertz (kHz). The term "AM broadcast" is synonymous with the term "standard broadcast" as contained elsewhere in this Chapter.

#### § 73.2 AM broadcast band. (Definition)

The term "AM broadcast band" means the band of frequencies extending from 535 to 1605 kHz.

#### § 73.3 AM broadcast channel. (Definition)

The term "AM broadcast channel" means the band of frequencies occupied by the carrier and two sidebands of a broadcast signal with the carrier frequency at the center. Channels shall be designated by their assigned carrier frequencies. The 107 carrier frequencies assigned to AM broadcast stations shall begin at 540 kHz and be in successive steps of 10 kHz.

#### § 73.4 Dominant station.

The term "dominant station" means a Class I station, as defined in § 73.21, operating on a clear channel.

#### § 73.5 Secondary station.

The term "secondary station" means any station, except a Class I station, operating on a clear channel.

#### § 73.6 Daytime.

See § 73.1720.

#### § 73.7 Nighttime.

The term "nighttime" means that period of time between local sunset and local sunrise.

#### § 73.8 Sunrise and sunset.

The terms "sunrise" and "sunset" mean, for each particular location and during any particular month, the time of sunrise and sunset as specified in the instrument of authorization (See § 73.83).

#### § 73.9 Broadcast day.

See § 73.1700.

#### § 73.10 Experimental period. (Definition)

The term "experimental period" in reference to AM broadcast station operation means that time between 12 midnight local time and local sunrise.

#### § 73.11 Service areas.

(a) The term "primary service area" of a broadcast station means the area in which the groundwave is not subject to objectionable interference or objectionable fading.

(b) The term "secondary service area" of a broadcast station means the area served by the skywave and not subject to objectionable interference. The signal is subject to intermittent variations in strength.

(c) The term "intermittent service area" of a broadcast station means the area receiving service from the groundwave but beyond the primary service area and subject to some interference and fading.

#### § 73.12 Portable transmitters.

See § 73.1530.

#### § 73.13 Critical hours.

The term "critical hours" means the two hour period immediately following local sunrise and the two hour period immediately preceding local sunset.

#### § 73.14 Technical definitions.

(a) *Combined audio harmonics.* The term "combined audio harmonics" means the arithmetical sum of the amplitudes of all the separate harmonic components. Root sum square harmonic readings may be accepted under conditions prescribed by the Commission.

(b) *Effective field.* The term "effective field" or "effective field strength" is the root-mean-square (RMS) value of the inverse distance fields at a distance of 1 mile from the antenna in all directions in the horizontal plane. The term "field strength" is synonymous with the term "field intensity" as contained elsewhere in this Part.

(c) *Nominal power.* "Nominal power" is the power of an AM broadcast station, as specified in a system of classification which includes the following values: 50 kW, 25 kW, 10 kW, 5 kW, 2.5 kW, 1 kW, 0.5 kW, and 0.25 kW.

(d) *Operating power.* Depending on the context within which it is employed, the term "operating power" may be synonymous with "nominal power" or "antenna power."

(e) *Maximum rated carrier power.* "Maximum rated carrier power" is the maximum power at which the transmitter can be operated satisfactorily and is determined by the design of the transmitter and the type and number of vacuum tubes used in the last radio stage.

(f) *Plate input power.* "Plate input power" means the product of the direct plate voltage applied to the tubes in the last radio stage and the total direct current flowing to the plates of these tubes, measured without modulation.

(g) *Antenna power*. "Antenna input power" or "antenna power" means the product of the square of the antenna current and the antenna resistance at the point where the current is measured.

(h) *Antenna current*. "Antenna current" means the radio-frequency current in the antenna with no modulation.

(i) *Antenna resistance*. "Antenna resistance" means the total resistance of the transmitting antenna system at the operating frequency and at the point at which the antenna current is measured.

(j) *Modulator stage*. "Modulator stage" means the last amplifier stage of the modulating wave which modulates a radio-frequency stage.

(k) *Modulated stage*. "Modulated stage" means the radio-frequency stage to which the modulator is coupled and in which the continuous wave (carrier wave) is modulated in accordance with the system of modulation and the characteristics of the modulating wave.

(l) *Last radio stage*. "Last radio stage" means the oscillator or radio-frequency-power amplifier stage which supplies power to the antenna.

(m) *Percentage modulation* (amplitude):

In a positive direction:

$$M = \frac{MAX - C}{C} \times 100$$

In a negative direction:

$$M = \frac{C - MIN}{C} \times 100$$

Where:

*M* = Modulation level in percent.

*MAX* = Instantaneous maximum level of the modulated radio frequency envelope.

*MIN* = Instantaneous minimum level of the modulated radio frequency envelope.

*C* = (Carrier) level of radio frequency envelope without modulation.

(n) *Maximum percentage of modulation*. "Maximum percentage of modulation" means the greatest percentage of modulation that may be obtained by a transmitter without producing in its output harmonics of the modulating frequency in excess of those permitted by these regulations.

(o) *High level modulation*. "High level modulation" is modulation produced in the plate circuit of the last radio stage of the system.

(p) *Low level modulation*. "Low level modulation" is modulation produced in an earlier stage than the final.

(q) *Plate modulation*. "Plate modulation" is modulation produced by introduction of the modulating wave into the plate circuit of any tube in which the carrier frequency wave is present.

(r) *Grid modulation*. "Grid modulation" is modulation produced by introduction of the modulating wave into any of the grid circuits of any tube in which the carrier frequency wave is present.

(s) *Blanketing*. Blanketing is that form of interference which is caused by the presence of a broadcast signal of one volt per meter (V/m) or greater strength in the area adjacent to the antenna of the transmitting station. The 1 V/m contour is referred to as the blanket contour and the area within this contour is referred to as the blanket area.

(t) *Carrier-amplitude regulation*. (Carrier shift) The change in amplitude of the carrier wave in an amplitude-modulated transmitter when modulation is applied under conditions of symmetrical modulation.

(u) *Frequency departure*. The amount of variation of a carrier frequency or center frequency from its assigned value.

(v) *Critical directional antenna*. An AM broadcast directional antenna for which the station authorization requires the maintenance of the ratios of currents within the elements of the system within a tolerance of less than 5% or the relative phases of those currents within a tolerance of less than 3°.

#### § 73.15 NARBA and the U.S./Mexican Agreement.

See § 73.1650.

#### ADMINISTRATIVE PROCEDURE

#### § 73.17 Cross reference to rules in other parts.

See § 73.1010.

#### § 73.18 Notification of filing of applications.

See § 73.1030.

#### ALLOCATION OF FACILITIES; AUTHORIZATIONS

#### § 73.21 Classes of AM broadcast channels and stations.

(a) *Clear channel*. A clear channel is one of which the dominant station or stations render service over wide areas, and which are cleared of objectionable interference within their primary service areas and over all or a substantial portion of their secondary service areas. Stations operating on these channels are classified as follows:

(1) *Class I station*. A Class I station is a dominant station operating on a clear channel and designed to render primary and secondary service over an extended area and at relatively long distances. Its primary service area is free from objectionable interference from other stations on the same and adjacent channels, and its secondary service area free from interference except from stations on adjacent channels, and from stations on the same channel in accordance with the channel designation in §§ 73.25 or 73.182. The operating power shall not be less than 10 kilowatts (kW) nor more than 50 kW. (Also see § 73.25 (a) for further power limitation.)

(2) *Class II station*. A Class II station is a secondary station which operates on a clear channel (see § 73.25) and is designed to render service over a primary service area which is limited by and subject to such interference as may be received from Class I stations. Whenever necessary a Class II station shall use

a directional antenna or other means to avoid interference with Class I stations and with other Class II stations in accordance with § 73.182 (and § 73.22 in the case of Class II-A stations). Class II stations are divided into three groups:

(i) *Class II-A station.* A Class II-A station is an unlimited time Class II station operating on one of the clear channels listed in § 73.22 and assigned to a community within a state specified in the Table contained in that section. A Class II-A station shall operate with power of not less than 10 kW nighttime nor more than 50 kW at any time.

(ii) *Class II-B station.* A Class II-B station is an unlimited time Class II station other than those included in Class II-A.

(A) Except as subparagraphs (B) and (C) provide otherwise, a Class II-B station shall operate with power not less than 0.25 kW nor more than 50 kW.

(B) Class II-B station authorized before June 1, 1980, to operate on any of the 25 Class I channels listed in Section 73.25(a) shall operate with the powers authorized as of June 1, 1980, or such other power as the Commission may subsequently authorize.

(C) The nighttime power of Class II-B stations which are authorized after June 1, 1980, to operate in any of the contiguous 48 states on any of the Class I channels listed in Section 73.25(a), and which do not meet the requirements for primary service set out in Section 73.37(e)(2)(i), shall not exceed 1 kW.

(D) Class II-B stations which are authorized after June 1, 1980, to operate in any of the contiguous 48 states on any of the Class I channels listed in Section 73.25(a), and which meet the requirements for primary service set out in Section 73.37(e)(2)(i), shall operate

with power not less than 250 watts nor more than 50 kW.

(iii) *Class II-D station.* A Class II-D station is a Class II station operating daytime or limited time. A Class II-D station shall operate with power not less than 0.25 kW nor more than 50 kW.

(b) *Regional channel.* A regional channel is one on which several stations may operate with powers not in excess of 5 kW. The primary service area of a station operating on any such channel may be limited to a given field intensity contour as a consequence of interference.

(1) *Class III station.* A Class III station is a station which operates on a regional channel and is designed to render service primarily to a principal center of population and the rural area contiguous thereto. Class III stations are subdivided into two classes.

(i) *Class III-A station.* A Class III-A station is a Class III station which operates with power not less than 1 kilowatt nor more than 5 kW and the service area of which is subject to interference in accordance with § 73.182.

(ii) *Class III-B station.* A Class III-B station is a Class III station which operates with a nighttime nominal power of 500 watts, and a daytime nominal power no less than 500 watts and no greater than 5 kilowatts. The service area of a Class III-B station is subject to interference in accordance with § 73.182.

(c) *Local channel.* A local channel is one on which several stations operate with powers no greater than provided in this paragraph. The primary service area of a station operating on any such channel may be limited to a given field strength contour as a consequence of interference. Such stations operate with

power no greater than 250 watts nighttime, and no greater than 1 kilowatt daytime (except that for stations in an area in the State of Florida south of the parallel 28 degrees north latitude, and between the meridians 80 and 82 degrees west longitude, power is limited to 250 watts, daytime and nighttime).

(1) *Class IV station.* A Class IV station is a station operating on a local channel and designed to render service primarily to a city or town and the suburban and rural areas contiguous thereto. The power of a station of this class shall not be less than 0.25 kW, and not more than 0.25 kW nighttime and 1 kW daytime, and its service area is subject to interference in accordance with § 73.182. Stations which are licensed to operate with 0.1 kW day or night may continue to do so.

NOTE 1: Under NARBA, the power ceiling for Class IV stations is 250 watts daytime, as well as nighttime. The U.S./Mexican Agreement permits such stations to operate with power not in excess of 1 kilowatt daytime. Pursuant to the U.S./Mexican Agreement and informal coordination with the NARBA signatories, the Commission will consider applications for Class IV stations on local channels with daytime powers in excess of 0.25 kW, up to 1 kW, if such stations are outside of the area specified in paragraph (c) of this section, and if no objectionable interference would be caused (under the standards set forth in the pertinent international agreement) to a duly notified station in Mexico, Haiti, or any foreign country signatory to NARBA.

NOTE 2: Class IV stations located within 100 kilometers (62 miles) of the Mexican border, and presently authorized to operate with a daytime power of 250 watts, may file applications for increases in daytime power to 1 kW. However, such an application will be granted only after coordination with Mexico of the proposed increase, if required, pursuant to Annex IV to the U.S./Mexican Agreement.

NOTE 3: All authorizations of new or changed Class I-B, Class II-B, Class II-D, Class III or Class IV facilities after October 30, 1961, are subject to whatever interference may be received from, or whatever overlap of 2.0 mV/m and 25

mV/m groundwave contours or overlap of 25 mV/m groundwave contours may be involved with, previously or subsequently authorized Class II-A facilities.

[[73.21(a)(2)(ii) revised eff. 8-1-80; 73.21(b)(1)(ii) revised eff. 3-17-81; III(80)-1]]

§ 73.22 Assignment of Class II-A stations.

(a) *Table of assignments.* One Class II-A station may be assigned on each channel listed in the following table within the designated State or States:

Channel (Kilohertz)	Location of existing class I station	State(s) in which class II-A assignment may be applied for
670	Chicago, Ill.....	Idaho.
720	do.....	Nevada or Idaho.
770	New York, N.Y....	New Mexico.
780	Chicago, Ill.....	Nevada.
880	New York, N.Y....	North Dakota, South Dakota, or Nebraska.
890	Chicago, Ill.....	Utah.
1020	Pittsburgh, Pa....	New Mexico.
1030	Boston, Mass.....	Wyoming.
1100	Cleveland, Ohio...	Colorado.
1120	St. Louis, Mo.....	California or Oregon.
1180	Rochester, N.Y....	Montana.
1210	Philadelphia, Pa..	Kansas, Nebraska, or Oklahoma.

(b) *Minimum service to "white" areas.* No Class II-A station shall be assigned unless at least 25 percent of its nighttime interference-free service area or at least 25 percent of the population residing therein receives no other interference-free nighttime primary service.

(c) *Power.* Class II-A stations shall operate with not less than 10 kW power nighttime.

(d) *Protection.* (1) *Protection by Class II-A stations to other stations.* The co-channel Class I-A station shall be protected by the Class II-A station to its 0.1 mV/m contour daytime and its 0.5 mV/m 50 percent skywave contour nighttime. All other stations of any class authorized on or before October 30, 1961, shall normally receive protection from objectionable



interference from Class II-A stations as provided in § 73.182.

(2) *Protection to Class II-A stations.* A Class II-A station shall normally receive daytime protection to its 0.5 mV/m groundwave contour and nighttime protection to the contour to which it is limited by the co-channel Class I-A station.

(e) *Applications not complying with this section.* Applications for Class II-A stations which do not meet the requirements of paragraphs (b) and (c) of this section will be returned without further consideration.

### § 73.23 Time of operation of the several classes of stations.

See § 73.1705.

### § 73.24 Broadcast facilities; showing required.

An authorization for a new standard broadcast station or increase in facilities of an existing station will be issued only after a satisfactory showing has been made in regard to the following, among others:

(a) That the proposed assignment will tend to effect a fair, efficient, and equitable distribution of radio service among the several states and communities.

(b) That a proposed new station (or a proposed change in the facilities of an authorized station) complies with the pertinent requirements of § 73.37 of this chapter.

**NOTE:** The provisions of § 73.37 of this Chapter shall not be applicable to new Class II-A stations or to stations for which applications were accepted for filing before July 1, 1964. With respect to such stations, the provisions of § 73.28 (d) of this Chapter, and the provisions of NOTE 1 of § 73.37 of this Chapter shall apply. Special provisions concerning interference from Class II-A to stations of other classes authorized after October 30, 1961, are contained in § 73.22(d) of this Chapter and NOTE 3 to § 73.21 of this Chapter. The level of interference shall be computed pursuant to §§ 73.182 and 73.186 of this Chapter.

(c) That the applicant is financially qualified to construct and operate the proposed station.

(d) That the applicant is legally qualified. That the applicant (or the person or persons in control of an applicant corporation or other organization) is of good character and possesses other qualifications sufficient to provide a satisfactory public service.

(e) That the technical equipment proposed, the location of the transmitter, and other technical phases of operation comply with the regulations governing the same, and the requirements of good engineering practice. (See the technical regulations of this subpart, including § 73.188.)

(f) That the facilities sought are subject to assignment as requested under existing international agreements and the rules and regulations of the Commission.

(g) That the population within the 1 V/m contour does not exceed 1.0 percent of the population within

the 25 mV/m contour: *Provided, however,* That where the number of persons within the 1 V/m contour is 300 or less the provisions of this paragraph are not applicable.

(h) That, in the case of an application for a Class II station, the proposed station would radiate, during two hours following local sunrise and two hours preceding local sunset, in any direction toward the 0.1 mV/m groundwave contour of a co-channel United States Class I station, no more than the maximum radiation values permitted under the provisions of § 73.187.

(i) That, in the case of an application for a Class II-A station (see § 73.22), 25 percent or more of the area or population within the nighttime interference-free service contour of the proposed station receives no nighttime interference-free primary service from another station.

(j) That the 25 mV/m contour encompasses the business district of the community to which the station is assigned, and that the 5 mV/m contour (or, at night, the interference-free contour, if of a higher value) encompasses all residential areas of such community.

(k) That the public interest, convenience, and necessity will be served through the operation under the proposed assignment.

### § 73.25 Clear channels; Classes I and II stations.

The frequencies in the following tabulations are designated as clear channels and assigned for use by the Classes of stations given:

(a) On each of the following channels, one Class I station will be assigned, operating with power of 50 kW: 640, 650, 660, 670, 700, 720, 750, 760, 770, 780, 820, 830, 840, 870, 880, 890, 1020, 1030, 1040, 1100, 1120, 1160, 1180, 1200, and 1210 kHz. In addition, on the channels listed in this paragraph, Class II stations may be assigned as follows:

(1) On 670, 720, 770, 780, 880, 890, 1020, 1030, 1100, 1120, 1180, and 1210 kHz, one Class II-A unlimited time station, assigned and located pursuant to the provisions of Section 73.22, and

(2) On any of the 25 channels listed at the beginning of this paragraph:

(i) the unlimited time, limited time, daytime-only, specified hours, and timesharing Class II stations authorized prior to June 1, 1980, to operate on those channels; and

(ii) additional unlimited time Class II-B stations authorized after June 1, 1980.

**NOTE 1:** Questions relating to the use of the 830 kHz for a Class II station at New York, New York, which are pending in Docket Nos. 11227 and 17538, will be decided in that consolidated proceeding.

NOTE 2: See NARBA concerning priority for Canadian Class I-B and Cuban Class I-C assignments on 640 kHz.

NOTE 3: See NARBA concerning Cuban Class II-E assignments on 660, 670, 760, 780, 830, 1020, 1030, and 1120 kHz.

NOTE 4: See the U.S./Mexican Agreement concerning Mexican use of 660, 760, 830, 1020, 1030 and 1180 kHz.

【§ 73.25 (a) (1) and (2) revised; (a) (3), (4), (5), and Note 1 deleted; Note 2 reds. as Note 1 and Notes 3, 4, and 5 reds. as 2, 3, and 4 respectively; Eff. 8-1-80; III(80)-1】

(b) To each of the following channels there may be assigned Class I and Class II stations: 680, 710, 810, 850, 940, 1000, 1060, 1070, 1080, 1090, 1110, 1130, 1140, 1170, 1190, 1500, 1510, 1520, 1530, 1540, 1550, and 1560 kHz.

NOTE: Class I and Class II stations on 1540 kHz shall deliver not over 5 microvolts per meter groundwave or 25 microvolts per meter 10 percent time skywave at any point of land in the Bahama Islands, and such stations operating nighttime (i.e., sunset to sunrise at the location of the Class II station) shall be located not less than 650 miles from the nearest point of land in the Bahama Islands.

(c) For Class II stations which will not deliver over 5 microvolts per meter groundwave or 25 uV/m 10 percent time skywave at any point on the Canadian border, and provided that such stations operating nighttime (i.e., during hours between sunset and sunrise at the location of the Class II station) are located not less than 650 miles from the nearest point on the Canadian border, 690, 740, 860, 990, 1010, and 1580 kHz.

NOTE: See NARBA concerning priority for Cuban Class I-B assignment on 1010 kHz, Class I-C assignments on 690 and 860 kHz, and Class I-D assignment on 740 kHz.

(d) The frequencies 730, 800, 900, 1050, 1220, and 1570 kHz, for Class II stations which operate daytime only, which will not deliver at any point on the Mexican border over uV/m groundwave, and which operate with no more than the following powers:

(1) If not located within the areas specified in subparagraph (2) of this paragraph, 5 kilowatts.

(2) If operating on any of the following frequencies within the following specified areas, no more than one kilowatt:

(i) 800 kHz: less than 1319 kilometers (820 miles) from Ciudad Juarez, Chihuahua.

(ii) 1050 kHz: less than 998 kilometers (620 miles) from Monterrey, Nuevo Leon.

(iii) 1570 kHz: less than 998 kilometers (620 miles) from Ciudad Acuna, Coahuila.

NOTE: See the U.S./Mexican Agreement concerning specific U.S. unlimited time Class II assignments on each of the following channels: 730, 800, 900, 1050, and 1220 kHz.

(e) The frequency 540 kHz, for Class II stations which will not deliver a signal of more than 5 uV/m groundwave or 25 uV/m 10 percent skywave at any point on the Canadian border, nor more than 10 uV/m daytime or 50 microvolts per meter nighttime at any point on the Mexican border: *Provided*, That stations operating at night shall be located:

(1) Within the continental United States including Alaska; and

(2) Not less than 650 miles from the nearest point on the Canadian border; and

(3) North of the parallel 35° N. if west of the meridian 93° W., or north of the parallel 30° N. if east of said meridian.

NOTE 1: See U.S./Mexican Agreement concerning a specific U.S. unlimited time assignment on this channel.

NOTE 2: See § 2.106 of this chapter with respect to use of 540 kHz.

**§ 73.26 Regional channels; Classes III-A and III-B stations.**

The following frequencies are designated as regional channels and are assigned for use by Class III-A and III-B stations: 550, 560, 570, 580, 590, 600, 610, 620, 630, 790, 910, 920, 930, 950, 960, 970, 980, 1150, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1350, 1360, 1370, 1380, 1390, 1410, 1420, 1430, 1440, 1460, 1470, 1480, 1590, and 1600 kHz.

NOTE: See NARBA concerning Cuban Class I-C assignments on 550 kHz, Class I-D assignments on 570, 590, 630, 920, 950 and 980 kHz, and Class III-E assignments on 790, 910, and 1150 kHz.

### § 73.27 Local channels; Class IV stations.

The following frequencies are designated as local channels and are assigned for use by Class IV stations: 1230, 1240, 1340, 1400, 1450, and 1490 kHz.

NOTE: See NARBA concerning Cuban Class IV-E assignments on 1240 and 1340 kHz.

### § 73.28 Assignment of stations to channels.

(a) With respect to applications for new Class II-A stations, and other applications accepted for filing before July 13, 1964, the individual assignments of stations to channels which may cause interference to other United States stations only shall be made in accordance with the provisions of this part for the respective classes of stations involved. (For determining objectionable interference, see §§ 73.22, and 73.182 through 73.186.)

(b) Except as provided in § 73.21 (c) concerning Class IV stations, no assignment of an AM broadcast station will be made which would be inconsistent with the provisions of NARBA or the U.S./Mexican Agreement. Similarly, as long as protection for U.S. assignments from Haitian assignments continues, no U.S. assignment of an AM broadcast station will be made which would cause objectionable interference (under the standards set forth in NARBA) to a duly notified Haitian station. (The Haitian stations considered to be duly notified are those notified and accepted in accordance with past agreements, and those subsequently notified in accordance with the procedures and understandings which have pertained thus far.) In all cases where an individual assignment may cause interference with, or may involve a channel assigned for priority of use by, a station in another North American country, the classifications, allocation requirements, and engineering standards set forth in NARBA and the U.S./Mexican Agreement shall be observed.

NOTE: (a) In general, an application for an AM broadcast station assignment, the grant of which would be consistent with the provisions of NARBA and the U.S./Mexican Agreement and would not cause objectionable interference to a duly notified station in Haiti, will be considered and acted upon by the Commission in accordance with its rules and established procedure for action upon such applications. However, in particular cases such applications may also present considerations of an international nature which require that a different procedure be followed. In such cases the procedure to be followed will be determined by the Commis-

sion in the light of the special considerations involved.

(b) With respect to applications for facilities which would involve conflict with NARBA only as to a country which has signed but not completed formal ratification of that agreement, and facilities which would cause objectionable interference to a duly notified Haitian station, special provisions of a procedural nature are contained in § 73.3570.

(c) Engineering standards now in force domestically differ in some respects from those specified for international purposes. The engineering standards specified for international purposes (in NARBA and the U.S./Mexican Agreement) will be used to determine: (1) The extent to which interference might be caused by a proposed station in the United States to a station in another country of the North American Region; and (2) whether the United States should register an objection to any new or changed assignment notified by another country of the North American Region. The domestic standards in effect in the United States will be used to determine the extent to which interference exists or would exist from a foreign station where the value of such interference enters into a calculation of: (1) the service to be rendered by a proposed operation in the United States; or (2) the permissible interfering signal from one station in the United States to another United States station.

(d) With respect to applications for new Class II-A stations, and other applications accepted for filing before July 13, 1964, the following shall apply: Upon showing that a need exists, a Class II, III or IV station may be assigned to a channel available for such class, even though interference will be received within its normally protected contour, subject to the following conditions: (1) No objectionable interference will be caused by the proposed station to existing stations or that if interference will be caused, the need for the proposed service outweighs the needs for the service which will be lost by reason of such interference; (2) Primary service will be provided to the community in which the proposed station is to be located; (3) The interference received does not affect more than 10 percent of the population in the proposed station's normally protected primary service area; however, in the event that the nighttime interference received by a proposed Class II or III station would exceed this amount, then an assignment may be made if the proposed station, would provide either an AM broadcast nighttime facility to a community not having such

a facility or if 25 percent or more of the nighttime primary service area of the proposed station is without primary nighttime service. This subparagraph (3) of this paragraph shall not apply to existing Class IV stations on local channels applying for an increase in power above 250 watts, nor to new Class IV stations proposing power in excess of 250 watts with respect to population in the primary service area outside the equivalent 250 watt, 0.5 mV/m contour.

**§ 73.29 Class IV stations on regional channels.**

No license will be granted for the operation of a Class IV station on a regional channel: *Provided, however,* That Class IV stations presently authorized to operate on regional channels will not be required to change frequency or power, but will not be protected against interference from Class III stations.

**§ 73.30 Station location and program origination.**

See §§ 73.120, 73.1125, and 73.130.

**§ 73.31 Authority to move main studio.**

See § 73.1125.

**§ 73.32 Special experimental authorizations.**

See § 73.1510 and § 73.1520.

**§ 73.33 Antenna systems; showing required.**

(a) An application for authority to install a broadcast antenna shall specify a definite site and include full details of the antenna design and expected performance.

(b) All data necessary to show compliance with the terms and conditions of the construction permit must be filed with the license application. If the station is using a directional antenna, a proof of performance must also be filed.

**§ 73.34 Normal license period.**

See § 73.1020.

**§ 73.35 Multiple ownership.**

(a) No license for a AM broadcast station shall be granted to any party (including all parties under common control) if such party directly or indirectly owns, operates, or controls: one or more standard broadcast stations and the grant of such license will result in any overlap of the predicted or measured 1 mV/m groundwave contours of the existing and proposed sta-

tions, computed in accordance with § 73.183 or § 73.186; or one or more television broadcast stations and the grant of such license will result in the predicted or measured 2 mV/m groundwave contour of the proposed station, computed in accordance with § 73.183 or § 73.186, encompassing the entire community of license or one of the television broadcast stations or will result in the Grade A contour(s) of the television broadcast station(s), computed in accordance with § 73.684, encompassing the entire community of license of the proposed station; or a daily newspaper and the grant of such license will result in the predicted or measured 2 mV/m contour, computed in accordance with § 73.183 or § 73.186, encompassing the entire community in which such newspaper is published.

(b) (1) No license for an AM broadcast station shall be granted to any party (including all parties under common control) if such party, or any stockholder, officer or director of such party, directly or indirectly owns, operates, controls, or has any interest in, or is an officer or director of any other AM broadcast station if the grant of such license would result in a concentration of control of AM broadcasting in a manner inconsistent with the public interest, convenience, or necessity. The FCC however, will in any event consider that there would be such a concentration of control contrary to the public interest, convenience or necessity for any party or any of its stockholders, officers, or directors to have a direct or indirect interest in, or be stockholders, officers, or directors of, more than seven AM broadcast stations, or of 3 broadcast stations in one or several services, where any two are within 100 miles of the third (measured city to city), if there is a primary service contour overlap of any of the stations.

(2) The reference points which shall be used for city-to-city measurements are those listed in the Index to *The National Atlas of the United States of America*, United States Department of Interior, Geological Survey, Washington, D.C., 1970. (Future editions will supersede.) In the case of any community of license which is not referenced by the National Atlas, such as a newly established community, the point of reference shall be the main post office until such town is referenced. The National Atlas is available for reference at most public libraries and at the FCC in Washington.

【§ 73.35(b) revised eff. 4-30-80; III(80)-1】



(c) No renewal of license shall be granted for a term extending beyond January 1, 1980, to any party that as of January 1, 1975, directly or indirectly owns, operates or controls the only daily newspaper published in a community and also as of January 1, 1975, directly or indirectly owns, operates or controls the only commercial aural station or stations encompassing the entire community with a city-grade signal during daytime hours (predicted or measured signal for AM, predicted for FM). The provisions of this paragraph shall not require divestiture of any interest not in conformity with its provisions earlier than January 1, 1980. Divestiture is not required if there is a separately owned, operated or controlled television broadcast station licensed to serve the community.

NOTE 1.—The word "control" as used herein is not limited to majority stock ownership, but includes actual working control in whatever manner exercised.

NOTE 2.—In applying the provisions of paragraphs (a) and (c) of this section, partial (as well as total) ownership interests in corporate broadcast licenses and corporate daily newspapers represented by ownership of voting stock of such corporations will be considered.

NOTE 3.—Except as provided in Notes 4 and 5 of this section, in applying the provisions of paragraphs (a), (b), and (c) of this section to the stockholders of a corporation which has more than 50 voting stockholders, only those stockholders need be considered who are officers or directors of who directly or indirectly own 1 percent or more of the outstanding voting stock.

NOTE 4.—In applying the provisions of paragraphs (a), (b), and (c) of this section to the stockholders of a corporation which has more than 50 voting stockholders, an investment company as defined in 15 U.S.C. section 80a-3 need be considered only if it directly or indirectly owns 5 percent or more of the outstanding voting stock or if officers or directors of the corporation are representatives of the investment company. *Provided, however,* That the investment company exercises no control over the management or policies of the corporation. Holdings by investment companies under common management shall be aggregated.

NOTE 5.—In applying the provisions of paragraphs (a), (b), and (c) of this section to the stockholders of a corporation which has more than 50 voting stockholders, a bank holding stock through its trust department in trust accounts or an insurance company need be considered only if such bank or insurance company directly or indirectly owns 5 percent or more of the outstanding voting stock or if officers or directors of the corporation are representatives of the bank or insurance company. *Provided, however,* That the bank or insurance company exercise no control over the management or policies of the corporation. Holdings by banks or insurance companies shall be aggregated if the banks or insurance companies have any right to determine how the stock will be voted.

NOTE 6.—In calculating the percentage of ownership of voting stock under the provisions of Notes 4 and 5, if an investment company, bank or insurance company, directly or indirectly owns voting stock in a company which in turn directly or indirectly owns 50 percent or more of the voting stock of a corporate broadcast licensee or corporate daily newspaper, the investment company, bank or insurance company shall be considered to own the same percentage of outstanding

shares of the corporate broadcast station licensee or corporate daily newspaper as it owns of outstanding voting shares of the company standing between it and the licensee corporation or corporate daily newspaper. If the intermediate company owns less than 50 percent of the voting stock of a corporate broadcast station licensee or corporate daily newspaper, the holding of the investment company, bank or insurance company need not be considered under the 5-percent rule, but officers or directors of the licensee corporation or of the corporate daily newspaper who are representatives of the intermediate company shall be deemed to be representatives of the investment company, bank or insurance company if the investment company, bank or insurance company owns 5 percent or more of the intermediate company.

NOTE 7.—In cases where record and beneficial ownership of voting stock of a corporate broadcast station licensee or corporate daily newspaper which has more than 50 voting stockholders are not identical, e.g., bank nominees holding stock as record owners for the benefit of mutual funds, brokerage houses holding stock in street names for the benefit of customers, trusts holding stock as record owners for the benefit of designated parties, and insurance companies holding stock, the party having the right to determine how the stock will be voted will be considered to own it for the purposes of these rules.

NOTE 8.—Paragraph (a) of this section will not be applied so as to require divestiture, by any licensee, of existing facilities. Said paragraph will not apply to applications for increased power for Class IV stations; to applications for assignment of license or transfer of control filed in accordance with § 73.3540 (d) or § 73.3541 (b) to applications for assignment of license or transfer of control to heirs or legatees by will or intestacy if no new or increased overlap would be created between commonly owned, operated or controlled AM broadcast stations and if no new encompassment of communities proscribed in paragraph (a) of this section as to commonly owned, operated, or controlled AM broadcast stations and television broadcast stations or daily newspapers would result. Said paragraph will apply to all applications for new stations, to all other applications for assignment or transfer, and to all applications for major changes in existing stations except major changes that will result in overlap of contours of standard broadcast stations with each other no greater than already existing. (The resulting areas of overlap contours of AM broadcast stations with each other in such major change cases may consist partly or entirely of new terrain. However, if the population in the resulting overlap areas substantially exceeds that in the previously existing overlap areas, the Commission will not grant the application if it finds that to do so would be against the public interest, convenience, or necessity.) Paragraph (a) of this section will not apply to any application by a party who directly or indirectly owns, operates, or controls a UHF television broadcast station where grant of such application would result in the Grade A contour of the UHF station encompassing the entire community of license of a commonly owned, operated, or controlled AM broadcast station or would result in the entire community of license of such UHF station being encompassed by the 2mV/m contour of such AM broadcast station. Such community encompassment cases will be handled on a case-by-case basis in order to determine whether common ownership, operation, or control of the stations in question would be in the public interest. Commonly owned, operated, or controlled broadcast stations, with overlapping contours or with community-encompassing contours prohibited by paragraph (a) of this section may not be

assigned or transferred to a single person, group, or entity, except as provided above in this note. If a commonly owned, operated or controlled AM broadcast station and daily newspaper fall within the encompassing proscription of paragraph (a) of this section, the station may not be assigned to a single person, group or entity if the newspaper is being simultaneously sold to such single person, group or entity.

**NOTE 9.**—Paragraph (a) of this section will not be applied to cases involving television stations which are primarily “satellite” operations. Such cases will be considered on a case-by-case basis in order to determine whether common ownership, operation, or control of the stations in question would be in the public interest. Whether or not a particular television broadcast which does not present a substantial amount of locally originated programming is primarily a “satellite” operation will be determined on the facts of the particular case. An authorized and operating “satellite” television station the Grade A contour of which completely encompasses the community of license of a commonly owned, operated, or controlled AM broadcast station, or the community of license of which is completely encompassed by the 2mV/m contour of such AM broadcast station may subsequently become a “non-satellite” station with local studios and locally originated programming. However, such commonly owned, operated, or controlled AM and “non-satellite” television stations may not be transferred or assigned to a single person, group, or entity except as provided in Note 8.

**NOTE 10.**—For the purposes of this section a daily newspaper is one which is published four or more days per week, which is in the English language, and which is circulated generally in the community of publication. A college newspaper is not considered as being circulated generally.

**NOTE 11.**—For the purposes of the three station regional concentration provision of this section, (a) an application raising a regional concentration of control issue which involves one or more UHF television stations will be treated on a case-by-case basis, consistent with the precedents of UHF determinations made under the one-to-a-market proscriptions of this section, and (b) AM and FM broadcast stations licensed to communities which are within 15 miles (city reference point to reference point) and/or within the same urbanized area (as mapped by the U.S. Bureau of the Census), will be considered as a combination and counted as one station.

**§ 73.36 Special field test authorization.**

See § 73.1515.

**§ 73.37 Applications for broadcast facilities, showing required.**

(a) Except as indicated in other paragraphs of this section, and except for Class II-A stations, no application will be accepted for a new station (or change in frequency) if the proposed operation would involve overlap of signal strength contours with any other station as set forth below in this paragraph; and no application will be accepted for a change (other than a change in frequency) of the facilities of an existing station (including the daytime facilities of an existing Class II-A station) if the proposed change would in-

volve such overlap in any area where there is not already such overlap between the stations involved:

Frequency separation	Contour of proposed new station (Classes II-B, II-D, III, and IV)	Contour of any other station
	<i>mV/m</i>	
Co-channel.....	0.005	0.1 mV/m (Class I).
	0.025	0.5 mV/m (Other classes).
	0.5	0.025 mV/m (All classes).
10 kHz.....	0.5	0.5 mV/m (All classes).
20 kHz.....	2	25 mV/m (All classes).
	25	2 mV/m (All classes).
30 kHz.....	25	25 mV/m (All classes).

(b) An application for a new daytime station or a change in the daytime facilities of an existing station may be granted notwithstanding overlap of the proposed 0.5 mV/m contour and the 0.025 mV/m contour of another co-channel station, where the applicant station is or would be the first AM broadcast facility in a community of any size wholly outside of an urbanized area (as defined by the latest U.S. Census), or the first AM broadcast facility in a community of 25,000 or more population wholly or partly within an urbanized area, or when the facilities proposed would provide a first primary service to at least 25 percent of the interference-free area within the proposed 0.5 mV/m contour: *Provided, That:*

(1) The proposal complies with paragraph (a) of this section in all other respects and is consistent with all other provisions of this part; and

(2) No overlap would occur between the 1 mV/m contour of the proposed facilities and the 0.05 mV/m contour of any co-channel station.

(c) In determining overlap received, an application for a new Class IV station with daytime power of 250 watts, or greater, shall be considered on the assumption that both the proposed operation and all existing Class IV stations operate with 250 watts and utilize non-directional antennas. With respect to applications for new Class IV facilities, the provisions of paragraph (b) of this section shall be applied using the assumption mentioned in this paragraph for determining overlap received.

(d) If otherwise consistent with the public interest, and subject to section 316 of the Communications Act, an application requesting an increase in the daytime power of an existing Class IV station on a local channel from 250 watts to a maximum of 1 kilowatt, or from 100 watts to a maximum of 500 watts, may be granted notwithstanding overlap prohibited by paragraph (a)

of this section. In the case of 100-watt Class IV station increasing daytime power, the provisions of this paragraph shall not be construed to permit an increase in power to more than 500 watts, if prohibited overlap would be involved, even if successive applications should be tendered.

(e) In addition to a demonstration of compliance with the requirements of paragraph (a), and, as appropriate, paragraphs (b), (c) and (d) of this section, an application for a new AM broadcast station, or for a major change (see § 73.3571(a)(1)) in an authorized AM broadcast station, as a condition for its acceptance, shall make a satisfactory showing, if new or modified nighttime operation by a Class II or Class III station is proposed, that objectionable interference will not result to any authorized station, as determined pursuant to § 73.183(o) of this chapter, and, for all classes of station, a satisfactory showing as indicated below for the kind of application submitted.

(1) Application for a new daytime station:

(i) That at least 25% of the area or population which would receive interference-free primary service from the proposed station does not receive such service from an authorized standard broadcast station, or receive service from an authorized FM broadcast station with a signal strength of 1 mV/m, or greater, or,

(ii) That the proposed station would provide the community designated in the application with a first or second authorized aural transmission service, and that no FM channel is available for use in that community or

(iii) That at least 20% of the area or population of the community designated in the application receives fewer than two daytime aural services from authorized stations, and that no FM channel is available for use in that community.

(2) Application for a new unlimited-time station or for nighttime facilities by an authorized daytime station or for a major change in facilities resulting in operation on one of the 25 Class I channels listed in § 73.25(a) by any authorized station:

(i) That at least 25% of the area or population which would receive interference-free primary service at night from the proposed station does not receive such service from an authorized AM broadcast station or service from an authorized FM broadcast station with a signal strength of 1 mV/m, or greater, or,

(ii) That the proposed station would provide the community designated in the application with a first

or second authorized nighttime aural transmission service, and that no FM channel is available for use in that community, or,

(iii) That at least 20 percent of the area or population of the community designated in the application receives fewer than two aural services at night from authorized stations, and that no FM channel is available for use in that community, or,

(iv) That minority persons hold over 50% of the ownership interests in the applicant for a Class II-B station on one of the 25 Class I channels listed in § 73.25(a), or,

(v) That the applicant proposes to operate a Class II-B station noncommercially on one of the 25 Class I channels listed in § 73.25(a).

(f) Applications for new or changed facilities in the states of Alaska and Hawaii, in the Commonwealth of Puerto Rico, and in the territories of the Virgin Islands, Guam, and American Samoa will be accepted for filing only if satisfactory showings are submitted with respect to the following:

(1) The proposed operation complies with the requirements of paragraphs (a), (b), (c), and (d) of this section.

(2) Unlimited time operation, by other than a Class IV facility, will not cause objectionable skywave interference at night to an existing station, pursuant to § 73.182(o). In addition, each proposal for unlimited time operation (including Class IV proposals) shall meet at least one of the following conditions:

(i) Not more than 10% of the population included within the normally protected nighttime contour would receive objectionable interference.

(ii) The proposed operation would be the first standard broadcast facility assigned to the community which would provide nighttime service.

(iii) For a proposed new station, that at least 25% of the area or population included within the nighttime interference-free primary service contour is without nighttime primary AM broadcast service, or, for a proposed change in the nighttime facilities of an authorized station, that at least 25% of the area or population which would receive interference-free nighttime primary service from the station for the first time as a result of the change in facilities is without nighttime primary standard broadcast service.

NOTE 1: The foregoing provisions of this section shall not be applied to applications for new Class II-A stations or to applications accepted for filing before July 1, 1964. With respect to such applications, the following shall apply: An authorization will not be granted for a station on a frequency of  $\pm 30$  kHz from that of another station if the area enclosed

by the 25 mV/m groundwave contours of the two stations overlap, nor will an authorization be granted for the operation of a station on a frequency  $\pm 20$  kHz or  $\pm 10$  kHz from the frequency of another station if the area enclosed by the 25 mV/m groundwave contour of either one overlaps the area enclosed by the 2 mV/m groundwave contour of the other. (As to overlap with Class II-A stations, see § 73.21, Note 3.)

**NOTE 2:** In the case of applications for changes (other than frequency) in the facilities of AM broadcast stations covered by this Section, an application therefor will be accepted even though overlap of signal strength contours as mentioned in this section would occur with another station in an area where such overlap does not already exist, if: (1) the total area of overlap with that station would not be increased; (2) there would be no net increase in the area of overlap with any other station; and (3) there would be created no area of overlap with any station with which overlap does not now exist.

**NOTE 3:** The provisions of this section concerning prohibited overlap of signal strength contours will not apply where: (1) the area of such overlap lies entirely over sea water; or (2) the only overlap involved would be that caused to a foreign station, in which case the provisions of the North American Regional Broadcasting Agreement (NARBA) and the U.S./Mexican Agreement will apply. Where overlap would be received from a foreign station, the provisions of this section will apply.

**NOTE 4:** All applications for new stations, or for major changes in existing stations tendered for filing after July 18, 1968, for facilities in the conterminous United States, shall be subject to the provisions of paragraph (e) of this section, or, for facilities in the States of Alaska and Hawaii, the Commonwealth of Puerto Rico and the territories of the Virgin Islands, Guam, and American Samoa, shall be subject to the provisions of paragraph (f) of this section.

**NOTE 5:** Where an application for a new unlimited time station proposes to provide a first or second nighttime aural transmission service to the community designated in the application, and daytime operation of the station would result in the provision of more than two aural transmission services for that community during daytime hours, the latter fact does not render the application unacceptable for filing. However, under such circumstances, the proposed daytime power shall not exceed the proposed nighttime power, absent a showing that, with higher daytime power, new daytime service would be provided pursuant to paragraph (e)(1)(i) or (e)(1)(iii) of this section.

**NOTE 6:** No FM channel is available for use in the community (see paragraphs (e)(1)(ii) and (e)(2)(ii) of this section) if no channel is assigned to the community for commercial use in the FM Table of Assignments (§ 73.202 (b)), as amended by Commission action as of the date the application is tendered, or, if assigned, is occupied by an authorized facility, and no unoccupied channel can be utilized to serve the community pursuant to § 73.203(b). For the purpose of determining the availability of a newly assigned FM channel when the Commission has recently amended the FM Table of Assignments, the governing date shall be that on which the Report and Order amending the Table is published in the FEDERAL REGISTER.

**NOTE 7:** Where an AM broadcast station and an FM broadcast station authorized to the same community are commonly owned, these stations shall be considered as providing a single aural transmission service to that community for the purpose of determining the acceptability of applications pursuant to paragraphs (e)(1)(ii) and (e)(2)(ii) of this section. Noncommercial educational FM stations and educational AM broadcast stations authorized to the community shall not be included in this determination.

**NOTE 8:** In determining the number of "authorized" aural transmission facilities in a given community, applications for that community in hearing or otherwise having protected status under specified "cut-off" procedures shall be considered as existing stations. In the event that there are two or more mutually exclusive protected applications seeking authorization for the proposed community, it will be assumed that only one is "authorized."

**NOTE 9:** A transmission facility for a community is a station licensed to the community. Such a station provides an aural transmission service for that community.

**NOTE 10:** Where the term "aural service" is used in paragraphs (e)(1)(iii) and (e)(2)(iii), it is intended to mean interference-free groundwave service provided by a commercial AM broadcast station with a field strength of 5 mV/m or higher, or service provided by a commercial FM broadcast station with a field strength of 3.16 mV/m (70 dBu) or higher. Stations whose transmitter sites are located more than 50 miles from the nearest boundary of the community designated in the application shall be excluded from consideration in determining the existence of such aural services.

**[§ 73.37(e)(2) revised eff. 1-26-81; § 73.37(e)(2)(iii) revised, (e)(2)(iv) and (v) added eff. 8-1-80; III (80)-1]**

### § 73.38 Limited time operation.

See § 73.1725.

## EQUIPMENT

### § 73.39 Indicating instruments—specifications.

See § 73.1215.

### § 73.40 Transmission system requirements.

(a) *Design.* The general design of AM broadcast transmitting equipment [main studio microphone (including telephone lines, if used, as to performance only) to antenna output] shall be in accordance with the following specifications. (In cases where telephone lines are not available to give the performance as required in these specifications a relay transmitter may be authorized to supersede the lines.) For the points not specifically covered in this paragraph, the principles set out shall be followed. The equipment shall be so designed that:

(1) The maximum rated carrier power (determined by § 73.42) is in accordance with the requirements of § 73.41.

(2) The equipment is capable of satisfactory operation at the authorized operating power or the proposed operating power with modulation of at least 85 to 95% with no more distortion than given in subparagraph (3) of this paragraph.

(3) The total audio frequency distortion from microphone terminals, including microphone amplifier, to antenna output does not exceed 5% harmonics (voltage measurements of arithmetical sum or r. s. s.) when modulated from 0 to 84%, and not over 7.5% harmonics (voltage measurements of arithmetical sum or r. s. s.) when modulating 85 percent to 95 percent (distortion shall be measured with modulating frequencies of 50, 100, 400, 1000, 5000 and 7500 hertz (Hz) up to tenth harmonic or 16,000 Hz, or any intermediate frequency that readings on these frequencies indicate is desirable).

(4) The audio frequency transmitting characteristics of the equipment from the microphone terminals (including microphone amplifier unless microphone frequency correction is included, in which event proper allowance shall be made accordingly) to the antenna output does not depart more than 2 dB from that at 1000 Hz between 100 and 5000 Hz.

(5) The carrier-amplitude regulation (carrier shift) at any percentage of modulation does not exceed 5 percent.

(6) The carrier hum and extraneous noise level, unweighted r.s.s. (exclusive of microphone and studio noises) over the frequency band 30 to 20,000 Hz is at least 45 dB below the level of a sinusoidal tone of a 400 Hz, producing 100% modulation of the carrier.

(7) The transmitter is equipped with suitable indicating instruments in accordance with the requirements of § 73.58, and any other instruments necessary for the proper adjustment and operation of the equipment.

(8) Adequate provision is made for varying the transmitter power output between sufficient limits to compensate for excessive variations in line voltage, or other factors which may affect the power output.

(9) The transmitter is equipped with automatic frequency control equipment capable of maintaining the operating frequency within the limit specified by § 73.1545(a).

(10) Means are provided for connection and continuous operation of an approved modulation monitor.

(11) Adequate margin is provided in all component parts to avoid overheating at the maximum rated power output.

(12) Any emission appearing on a frequency removed from the carrier by between 15 kHz and 30 kHz, inclusive, shall be attenuated at least 25 dB below the level of the unmodulated carrier. Compliance with the specification will be deemed to show the occupied bandwidth to be 30 kHz or less.

(13) Any emission appearing on a frequency removed from the carrier by more than 30 kHz and up to and including 75 kHz, inclusive, shall be attenuated at least 35 dB below the level of the unmodulated carrier.

(14) Any emission appearing on a frequency removed from the carrier by more than 75 kHz shall be attenuated at least  $43 + 10 \log_{10}$  (Power in watts) decibels below the level of the unmodulated carrier, or 80 dB, whichever is the lesser attenuation.

(b) *Construction.* In general, the transmitter shall be constructed either on racks and panels or in totally enclosed frames protected as required by the provisions of the National Electrical Code concerning transmitting equipment at radio and television stations.

*Note:* The final stages of high power transmitters may be assembled in open frames provided the equipment is enclosed by a protective fence.

(1) Means shall be provided for making all tuning adjustments, requiring voltages in excess of 350 volts to be applied to the circuit, from the front of the panels with all access doors closed.

(2) Proper bleeder resistors or other automatic means shall be installed across all the condenser banks to remove any charge which may remain after the high voltage circuit is opened (in certain instances the plate circuit of the tubes may provide such protection; however, individual approval of such shall be obtained by the manufacturer in case of standard equipment, and the licensee in case of composite equipment).

(3) All plate supply and other high voltage equipment, including transformers, filters, rectifiers and motor generators, shall be protected so as to prevent injury to operating personnel.

(4) Commutator guards shall be provided on all high voltage rotating machinery (coupling guards on motor generators, although desirable, are not required).

(5) Power equipment and control panels of the transmitter shall meet the above requirements (exposed 220 volt AC switching equipment on the front of



the power control panels is not recommended; however, it is not prohibited).

(iii) Power equipment located at a broadcast station but not directly associated with the transmitter (not purchased as part of same), such as power distribution panels, control equipment on indoor or outdoor stations and the substations associated therewith, are not under the jurisdiction of the Commission; therefore, § 73.46 does not apply.

(iv) Radio frequency power coupling, dividing and phasing networks shall be installed within protective cabinets or enclosures which are locked or provided with safety interlocks, or so located or screened as not to be a hazard to operating personnel. Antenna coupling network cabinets located entirely within a locked enclosure around an antenna base, need not have a separate lock or interlock.

(v) The antenna lead-in, transmission line and counterpoise (when used) shall be installed so as not to present a hazard.

(vi) Antenna towers having a radio frequency potential at the base (series fed, folded unipole, and insulated base antennas) shall be enclosed within effective locked fences or other enclosures. Keys to the antenna base fences, tuning houses and protective cabinet locks shall be available at the transmitter site at all times, and safe access shall be provided to each antenna power base for meter reading and maintenance purposes. Metal fencing and metal conduit and exposed nearby wiring shall be effectively grounded, either directly or through bypass or static drain devices.

(4) Metering equipment shall meet the requirements of §§ 73.58, 73.1215 and the following:

(i) All instruments having more than 1,000 volts potential to ground on the movement shall be protected by a cage or cover in addition to the regular case. (Some instruments are designed by the manufacturer to operate safely with voltages in excess of 1,000 volts on the movement. If it can be shown by the manufacturer's rating that the instrument will operate safely at the applied potential, additional protection is not necessary.)

(ii) In case the plate voltmeter is located on the low potential side of the multiplier resistor with one terminal of the instrument at or less than 1,000 volts above ground, no protective case is required. However, it is good practice to protect voltmeters subject to more than 5,000 volts with suitable over-voltage protective devices across the instrument terminals in case the winding opens.

(iii) The antenna ammeters (both regular and remote) and any other radio frequency instrument which it is necessary for the operator to read shall be so installed as to be easily and accurately read with-

out the operator having to risk contact with circuits carrying high potential radio frequency energy.

(c) *Wiring and shielding.* (1) The transmitter panels or units shall be wired in accordance with standard switchboard practice, either with insulated leads properly cabled and supported or with rigid bus bar properly insulated and protected.

(2) Wiring between units of the transmitter, with the exception of circuits carrying radio frequency energy, shall be installed in conduits or approved fiber or metal raceways to protect it from mechanical injury.

(3) Circuits carrying low level radio frequency energy between units shall be either concentric tube, two wire balanced lines, or properly shielded to prevent the pickup of modulated radio frequency energy from the output circuits.

(4) Each stage (including the oscillator) preceding the modulated stage shall be properly shielded and filtered to prevent unintentional feedback from any circuit following the modulated stage (an exception to this requirement may be made in the case of high level modulated transmitters of approved manufacture which have been properly engineered to prevent reaction).

(5) The crystal chamber, together with the conductor or conductors to the oscillator circuit shall be totally shielded.

(6) The monitors and the radio frequency lines to the transmitter shall be thoroughly shielded.

(d) *Installation.* (1) The installation shall be made in suitable quarters.

(2) Since an operator must be on duty at the transmitter control point during operation, suitable facilities for his welfare and comfort shall be provided at the control point.

(e) [Reserved]

(f) *Studio equipment.* (1) The studio equipment shall be subject to all the above requirements where applicable except as follows:

(i) If it is properly covered by an underwriter's certificate, it will be considered as satisfying the safety requirements.

(ii) The pertinent provisions of the National Electrical Code concerning transmitting equipment at radio and television stations shall apply for voltages only when in excess of 500 volts.

(2) No specific requirements are made relative to the design and acoustical treatment. However, the studios and particularly the main studio should be in accordance with the standard practice for the class of station concerned, keeping the noise level as low as reasonably possible.

**§ 73.41 Maximum rated carrier power; tolerances.**

The maximum rated carrier power of a transmitter shall be at a power step recognized by the Commission's plan of allocation (250 watts, 500 watts, 1 kW, 2.5kW, 10 kW, 25 kW, 50 kW) and shall not be less than the authorized power nor shall be greater than the value specified in the following Table:

Class of station	Maximum power authorized to station	Maximum rated carrier power permitted to be installed
Class IV.....	250, 500 or 1,000 watts.....	1,000
Class III.....	500 or 1,000 watts.....	1,000
	2,500 or 5,000 watts.....	5,000
Class II.....	250 500 or 1,000 watts.....	1,000
	2,500 watts.....	5,000
	5 000 or 10,000 watts.....	10 000
	25,000 or 50,000 watts.....	50,000
Class I.....	10 000 watts.....	10,000
	25,000 or 50,000 watts.....	50,000

**§ 73.42 Maximum rated carrier power; how determined.**

The maximum rated carrier power of an AM broadcast transmitter shall be determined as the sum of the applicable power ratings of the vacuum tubes employed in the last ratio stage.

**§ 73.43 Modification of transmission systems.**

Licensees of AM stations must observe the following procedures for making changes in authorizing station transmitting systems.

(a) No changes may be made:

(1) That would result in emissions of signals outside of the authorized channel exceeding that which is permitted under § 73.40.

(2) That would result in the external performance characteristics being in disagreement with those prescribed in § 73.40.

(b) The following modifications may be made only upon specific authority of the FCC. Application to make the changes must be filed on FCC Form 301 (FCC Form 340 for noncommercial educational stations).

(1) Installation of a main transmitter which is not included on the FCC's "radio equipment list" as type accepted for broadcast use.

(2) Modification of an existing transmitter that would affect its power rating or change any of the performance characteristics which are required for type acceptance.

(3) Change in the location or overall height of the antenna tower(s).

(4) Change in the antenna system (see § 73.45).

(5) Change in the operating power of the station.

(c) [Reserved]

(d) The following changes in the transmission system equipment may be made without prior authoriza-

tion from the FCC. Equipment performance measurements must be made within 10 days after completing the modifications.

(1) Installation of a new transmitter which is included on the FCC's "radio equipment list" as type accepted for broadcast use. (See § 73.1665.)

(2) Replacement of the carrier frequency generator of the transmitter with one of a different type that has been demonstrated to the FCC to be compatible with the transmitter in use.

**§ 73.44 [Reserved]**

**§ 73.45 Antenna Systems.**

(a) All applicants for new, additional, or different AM station facilities and all licensees requesting authority to change the transmitting system site of an existing station must specify an antenna system, the efficiency of which complies with the requirements for the class and power of station. (See §§ 73.186 and 73.189.)

(b) The simultaneous use of a common antenna or antenna structure by more than one AM station or by a station of any other type or service may be authorized provided:

(1) Engineering data are submitted showing that satisfactory operation of each station will be obtained without adversely affecting the operation of the other station(s).

(2) The minimum field strength for each AM station complies with § 73.189(b).

(c) Should any changes be made or otherwise occur which could possibly alter the resistance of the antenna system, the licensee immediately must make a new determination of the antenna resistance (see § 73.54). (If the changes are due to the construction of FM or TV transmitting facilities, see § 73.316(e) or § 73.658.) Upon completion of the antenna resistance measurements an application for authority to resume determination of operating power by the direct method must be filed with the FCC in Washington, D.C., as follows:

(1) Whenever the measurements show that the antenna or common point resistance differs from that shown on the station authorization, FCC Form 302 (FCC Form 341 for noncommercial educational stations) must be filed with the information and measurement data specified in § 73.54(a).

(2) Whenever the measurements show that the antenna or common point resistance does not differ from that shown on the station authorization, an informal application must be filed with the information specified in subparagraphs (3) through (6) of § 73.54(e).

[§ 73.45(c) revised eff. 4-30-80; III (80)-I]

**§ 73.46 Standards of good engineering practice.**

(a) The transmitter proper and associated transmitting equipment of each broadcast station shall be

designed, constructed, and operated in accordance with good engineering practice in all phases not otherwise specifically included in the regulations in this subpart.

(b) The transmitter shall be wired and shielded in accordance with good engineering practice and shall be provided with safety features in accordance with the specifications concerning transmitting equipment at radio and television stations contained in the current National Electrical Code as approved by the American Standards Association.

(c) The station equipment shall be so operated, tuned, and adjusted that emissions outside of the authorized channel do not cause harmful interference to the reception of other radio stations. AM broadcast stations employing radio transmitters type accepted after January 1, 1960, shall maintain the bandwidth occupied by their emissions in accordance with the specifications set forth in § 73.40 (a). Stations employing transmitters installed or type accepted prior to January 1, 1960, shall achieve the highest degree of compliance practicable with their existing equipment. In either case, should harmful interference to the reception of other radio stations occur, the licensee may be required to take such further steps as may be necessary to eliminate the interference.

(d) The audio distortion, audio frequency response, carrier hum, noise level, and other essential phases of the operation which control the external effects shall at all times conform to the requirements of good engineering practice.

#### § 73.47 Equipment performance measurements.

(a) The licensee of each AM station must make equipment performance measurements for each main transmitter when initially installed and thereafter at least once each calendar year. One set of measurements must be made during the 4-month period immediately preceding the filing date of the application for renewal of the station license. The dates of completion of successive sets of measurements may be no more than 14 months apart. If the same transmitter is authorized for more than one mode of operation, equipment performance measurements need be made at the highest authorized power level. (Equipment performance measurements for auxiliary transmitters are not required.) Equipment performance measurements must be made with equipment adjusted for normal program operation and must include all circuits between the main studio microphone terminals or amplifier input and the antenna circuit including equalizer or corrective circuits normally used, but without compression. The measurement program must yield the following information:

(1) Data and curves showing overall audiofrequency response from 50 to 7,500 hertz (Hz) for approximately 25, 50, 85, and 100 (if obtainable) percent modulation. Family of curves should be plotted (one for each percentage above) with dB above and below a reference

frequency of 1,000 Hz as ordinate and audiofrequency as abscissa.

(2) Data and curves showing audio frequency harmonic content for 25, 50, 85, and 100 (if obtainable) percent modulation for fundamental frequencies of 50, 100, 400, 1000, 5000, and 7500 Hz (either arithmetical or root sum square values up to the tenth harmonic or 16000 Hz). Plot family of curves (one for each percentage above) with percent distortion as ordinate and audio frequency as abscissa.

(3) Data showing percentage of carrier amplitude-regulation (carrier shift) for 25, 50, 85, and 100 (if obtainable) percent modulation with 400 Hz tone.

(4) The carrier hum and extraneous noise level generated within the equipment, and measured throughout the audio spectrum, or by bands, referred to the level for 100 percent modulation of the carrier by a sinusoidal tone with a frequency of 400 Hz.

(5) Measurements or evidence showing that spurious radiations including radio frequency harmonics are suppressed or are not present to a degree capable of causing objectionable interference to other radio services. Field strength measurements are preferred but observations made with a communications type receiver may be accepted. However, in particular cases involving interference or controversy, the Commission may require actual measurements.

(b) The data required by paragraph (a) of this section, together with a description of instruments and procedure, signed and dated by the qualified person making the measurements, shall be kept on file at the years, and on request shall be made available during that time to any duly authorized representative of the Federal Communication Commission.

#### § 73.48 Acceptability of broadcast transmitters for licensing.

See § 73.1660.

#### § 73.49 [Deleted]

#### § 73.50 Requirements for type approval of AM modulation monitors.

(a) Procedures for obtaining type approval of AM modulation monitors are contained in § 73.1668 and in Subpart J of Part 2 of the FCC rules.

(1) In approving a monitor upon the basis of the tests conducted by the Laboratory, the Commission merely recognizes that the type of monitor has the inherent capability of functioning in compliance with the rules, if properly constructed, maintained, and operated.

(2) Additional rules with respect to withdrawal of type approval, modification of type approval equipment and limitations on the findings upon which type approval is based are set forth in Part 2, Subpart J, of this Chapter.

(b) The specifications that the modulation monitor shall meet before it will be approved by the Commission are as follows:

(1) A DC meter for setting the average rectified carrier at a specific value and to indicate changes in carrier intensity during modulation.

(2) A peak indicating light or similar device that can be set at any predetermined value from 50 to 120 percent modulation to indicate on positive peaks, and/or from 50 to 100 percent negative modulation.

(3) A semi-peak indicator with a meter having the characteristics given below shall be used with a circuit such that peaks of modulation of duration between 40 and 90 milliseconds are indicated to 90 percent of full value and the discharge rate adjusted so that the pointer returns from full reading to 10 percent of zero within 500 to 800 milliseconds. A switch shall be provided so that this meter will read either positive or negative modulation and, if desired, in the center position it may read both in a full-wave circuit. The characteristics of the indicating meter are as follows:

(i) The damping factor shall be between 16 and 200. The useful scale length shall be at least 2.3 inches. The meter shall be calibrated for modulation from 0 to 110 percent and in dB below 100 percent with 100 percent being 0 dB.

(ii) The accuracy of the reading on percentage of modulation shall be  $\pm 2$  percent for 100 percent modulation, and  $\pm 4$  percent of full scale reading at any other percentage of modulation.

(4) The frequency characteristics curve shall not depart from a straight line more than  $\pm \frac{1}{2}$  dB from 30 to 10000 Hz. The amplitude distortion or generation of audio harmonics shall be kept to a minimum.

(5) The modulation meter shall be equipped with appropriate terminals so that an external peak counter can be readily connected.

(6) Modulation will be tested at 115 volts  $\pm 5$  percent and 60 Hz, and the above accuracies shall be applicable under these conditions.

(7) All specifications not already covered above and the general design, construction, and operation of these units must be in accordance with good engineering practice.

(c) [Deleted]

【§ 73.50 (a) revised eff. 4-30-80; III (80)-1】

#### TECHNICAL OPERATION

##### § 73.51 Determining operating power.

(a) Except in those circumstances described in paragraph (d) of this section, the antenna input power shall be determined by the direct method, *i.e.*, as the product of the licensed antenna resistance at the operating frequency (see § 73.54) and the square of the indicated unmodulated antenna current at that frequency, measured at the point where the antenna resistance has been determined.

(b) The authorized antenna input power for each station shall be equal to the nominal power for such station, with the following exceptions:

(1) For stations with nominal powers of 5 kW or less, the authorized antenna input power to directional antennas shall exceed the nominal power by 8 percent.

(2) For stations with nominal powers in excess of 5 kilowatts, the authorized antenna input power to directional antennas shall exceed the nominal power by 5.3 percent.

(3) In specific cases, it may be necessary to limit the radiated field to a level below that which would result if normal power were delivered to the antenna. In such cases, excess power may be dissipated in the antenna feed circuit, the transmitter may be operated with power output at a level which is less than the rated carrier power, or a combination of the two methods may be used, subject to the conditions given in paragraph (c) of this Section.

(c) Applications for authority to operate with antenna input power which is less than nominal power and/or to employ a dissipative network in the antenna system shall be made on FCC Form 302. The technical information supplied on section II-A of this form shall be that applying to the proposed conditions of operation. In addition, the following information shall be furnished, as pertinent.

(1) Full details of any network employed for the purpose of dissipating radio frequency energy otherwise delivered to the antenna (see § 73.54).

(2) A showing that the transmitter has been type accepted for operation at the proposed power output level, or, in lieu thereof:

(i) A full description of the means by which transmitter output power will be reduced.

(ii) Where the proposed transmitter power output level(s) is less than 90 percent of nominal power, equipment performance measurements, as specified in § 73.47, conducted at each proposed power output level; in addition, the measurements and observations required by § 73.47(a) (1), (2), (3) and (5) for power output levels 10 percent above, and 10 percent below, the proposed output level(s), but at a modulation level of 95 to 100 percent only. Such measurements must demonstrate that, operating at the proposed power output level(s), the transmitter meets the performance requirements of § 73.40.

(iii) A showing that, at the proposed power output level, means are provided for varying the transmitter output within a tolerance of  $\pm 10\%$ , to compensate for variations in line voltage or other factors which may affect the power output level.

(d) The indirect method of determining antenna input power, as described in paragraphs (e) and (f) of this Section, may be used on a temporary basis only. Prior authority from the FCC is not required. However, a notation when the indirect method is used must be made in the operating log. The indirect method may be used in the following situations:

(1) In an emergency, where the authorized antenna system has been damaged for causes beyond the control of the licensee. See § 73.45.

(2) Pending completion of authorized changes in the antenna system. See § 73.45(b).

(3) When changes occur in the antenna system or its environment which affect or appear likely to affect the value of antenna resistance. See § 73.45(c).

(4) When the antenna current ammeter or common point ammeter becomes defective, and the station does not have a remote reading meter, extension meter or remote control indication for these instruments. See § 73.58.

(5) When the remote reading meter, extension meter, or remote control meter indicating antenna or common point current becomes defective. See §§ 73.57, 73.67 or 73.1550.

(e) The antenna input power is determined indirectly by applying an appropriate factor to the input power to the last radio-frequency power amplifier stage of the transmitter, using the following formula :

$$\text{Antenna input power} = E_p \times I_p \times F$$

Where :

$E_p$  = DC input voltage of final radio stage.

$I_p$  = Total DC input current of final radio stage.

$F$  = Efficiency factor.

(1) If the above formula is not appropriate for the design of the transmitter final amplifier, use a formula specified by the transmitter manufacturer with other appropriate operating parameters.

(2) The value of  $F$  applicable to each mode of operation must be entered in the operating log for each day of operation, with a notation as to its derivation. This factor is to be established by one of the methods described in paragraph (f). The product of the D.C. input current and voltage to the final RF power amplifier stage, or, alternatively, the antenna input power as determined by the formula above must be entered in the operating log under an appropriate heading for each log entry of final RF power amplifier input current and voltage.

(f) The value of  $F$  is to be determined by one of the following procedures listed in order of preference :

(1) If the station had previously been authorized and operating by determining the antenna input power by the direct method, the factor  $F$  is the ratio of the antenna input power (determined by the direct method) to the corresponding final radio-frequency power amplifier input power. The computations are to be based on the values of antenna current and final amplifier input voltage and current obtained from the station's operating logs for the last week of regular operation with direct method of power determination.

(2) If a station has not been previously in regular operation with the power authorized for the period of indirect power determination, if a new transmitter has been installed, or if, for any other reason, the determination of the factor  $F$  by the method described in (1) of this paragraph is impracticable :

(i) The factor  $F$  as shown in the transmitter manufacturer's test report retained in the station's files, if such a test report specifies a unique value of  $F$  for the power level and frequency utilized ; or

(ii) If a station has been authorized to operate with antenna input power which is lower than nominal power, the factor  $F$  has the value established when such operation was authorized ; or

(iii) The value determined by reference to the following table :

Factor (F)	Method of modulation	Maximum rated carrier power	Class of amplifier
0.70	Plate.....	0.25 to 1.0 kW.....	B BC <sup>1</sup>
.80	Plate.....	2.5 kW and over.....	
.35	Low level.....	0.25 kW and over.....	
.65	Low level.....	0.25 kW and over.....	
.35	Grid.....	0.25 kW and over.....	

<sup>1</sup> All linear amplifier operation where efficiency approaches that of Class C operation.

**§ 73.52 Operating power.**

See §§ 73.62 and 73.1560.

**§ 73.53 Requirements for type approval of antenna monitors.**

(a) General requirements :

(1) Any manufacturer desiring to submit a monitor for type approval shall submit an application to the Commission in accordance with the procedure set forth in § 2.561 of this chapter, and subject to the fee schedule in § 1.1120 of this Chapter.

(2) Type approval of a monitor is granted subject to the limitations and requirements described in Subpart J of Part 2 of the FCC rules.

(b) The Laboratory Division of the Commission will make all tests necessary to determine whether or not the specifications of paragraph (c) of this Section have been met. During these tests, the monitor will be operated, to the extent possible, under service conditions. The manufacturer shall furnish to the Laboratory all instructions and services which will be supplied to a purchaser of the monitor.

(c) An antenna monitor eligible for type approval by the Commission shall meet the following specifications :

(1) The monitor shall be designed to operate on a frequency in the band 540 to 1600 kHz.

(2) The monitor shall be capable of indicating any phase difference between two RF voltages of the same frequency over a range of from 0 to 360°.

(3) The monitor shall be capable of indicating the relative amplitude of two RF voltages.

(4) The device used to indicate phase differences shall indicate in degrees, and shall be graduated in increments of 2°, or less. If a digital indicator is provided, the smallest increment shall be 0.5°, or less.

(5) The device used to indicate relative amplitudes shall be graduated in increments which are 1%, or less, of the full scale value. If a digital indicator is provided, the smallest increment shall be 0.1%, or less, of the full scale value.

(6) The monitor shall be equipped with means, if necessary, to resolve ambiguities in indication.

(7) If the monitor is provided with more than one RF input terminal in addition to a reference input terminal, appropriate switching shall be provided in the monitor so that the signal at each of these RF inputs may be selected separately for comparison with the reference input signal.

(8) Each RF input of the monitor shall provide a termination of such characteristics that, when connected to a sampling line of an impedance specified by the manufacturer, the voltage reflection coefficient shall be 3 percent or less.

(9) The monitor, if intended for use by stations operating directional antenna systems by remote control or using extension meters to observe the monitor indications shall be designed so that the switching functions required by subparagraph (c)(7) of this Section may be performed from a point external to the monitor and phase and amplitude indications be provided by external meters. The indications of external meters furnished by the manufacturer shall meet the specifications for accuracy and repeatability of the monitor itself, and the connection of these meters to the monitor, or of other indicating instruments with electrical characteristics meeting the specifications of the monitor manufacturer shall not affect adversely the performance of the monitor in any respect. The type-approval designations and the instruction manuals for monitors not designated for external switching of the indications as specified in this subparagraph shall clearly show that the monitors are not acceptable for use at stations using remote control for the operation of directional antennas or extension meters to read and log the monitor indications.

(10) If the monitor is fitted with operational features not specifically required by this Section, the features:

(i) Shall be arranged so as not to interfere with or be confused with the required functions of the monitor.

(ii) Shall meet the manufacturer's specifications for such operational features.

(11) The monitor shall be accompanied by complete and correct schematic diagrams and operating instructions. For the purpose of type approval, these diagrams and instructions shall be considered as part of the monitor.

(12) The general design, construction and operation of the monitor shall be in accordance with good engineering practice.

(13) When an RF signal of an amplitude within a range specified by the manufacturer is applied to the reference RF input terminal of the monitor, and another RF signal of the same frequency and of equal or lower amplitude is applied to any other selected RF input terminal, indications shall be provided meeting the following specifications.

(i) The accuracy with which any difference in the phases of the applied signals is indicated shall be  $\pm 1^\circ$ ,

or better, for signal amplitude ratios of from 2:1 to 1:1, and  $\pm 2^\circ$ , or better, for signal amplitude ratios in excess of 2:1 and up to 5:1.

(ii) The repeatability of indication of any difference in the phases of the applied signals shall be  $\pm 1^\circ$ , or better.

(iii) The accuracy with which the relative amplitudes of the applied signals is indicated, over a range in which the ratio of these amplitudes is between 2:1 and 1:1, shall be  $\pm 2$  percent of the amplitude ratio, or better, and for amplitude ratios in excess of 2:1 and up to 5:1,  $\pm 5$  percent of the ratio, or better.

(iv) The repeatability of indication of the relative amplitudes of the applied signals, over a range where the ratio of these amplitudes is between 5:1 and 1:1, shall be  $\pm 2$  percent of the amplitude ratio, or better.

(v) The modulation of the RF signals by a sinusoidal wave of any frequency between 100 and 10,000 Hz, at any amplitude up to 90 percent shall cause no deviation in an indicated phase difference from its value, as determined without modulation, greater than  $\pm 0.5^\circ$ .

(14) The performance specifications set forth in paragraph (c)(13) of this Section, shall be met when the monitor is operated and tested under the following conditions.

(i) After continuous operation for 1 hour, the monitor shall be calibrated and adjusted in accordance with the manufacturer's instructions.

(ii) The monitor shall be subjected to variations in ambient temperature between the limits of 10 and 40°C; external meters furnished by the manufacturer will be subjected to variations between 15 and 30°C.

(iii) Powerline supply voltage shall be varied over a range of from 10 percent below to 10 percent above the rated supply voltage.

(iv) The amplitude of the reference signal shall be varied over the operating range specified by the manufacturer, and in any case over a range of maximum to minimum values of 3 to 1.

(v) The amplitude of the comparison signal shall be varied from a value which is 0.2 of the amplitude of the reference signal to a value which is equal in amplitude to the reference signal.

(vi) Accuracy shall be determined for the most adverse combination of conditions set forth above.

(vii) Repeatability shall be determined as that which may be achieved under the specified test conditions over a period of 7 days, during which no calibration or adjustment of the instrument, subsequent to the initial calibration, shall be made.

(viii) The effects of modulation of the RF signal shall be separately determined, and shall not be included in establishing values for accuracy and repeatability.

#### § 73.54 Antenna resistance and reactance measurements.

(a) The resistance of an omnidirectional series fed antenna shall be measured at the base of the antenna

without intervening coupling networks or components. (Static drain devices; current transformers; and circuits to isolate antenna monitor sampling lines, tower lighting power lines, or lines connecting other antennas mounted on the antenna tower are not considered to be antenna coupling networks or components.) The resistance of shunt excited antenna shall be measured at the point the radio frequency energy is transferred to the feed wire circuit, without intervening networks, except that if the termination of the feed wire is highly reactive, a network containing no shunt element may follow the point where the resistance is determined.

(b) The resistance and reactance of a directional antenna shall be measured at the point of common radiofrequency input to the directional antenna system. The following conditions shall obtain:

(1) The antenna shall be finally adjusted for the required radiation pattern.

(2) The reactance at the operating frequency and at the point of measurement shall be adjusted to zero, or as near thereto as practicable.

(c) (1) The resistance of an antenna shall be determined by the following procedure: A series of discrete measurements shall be made over a band of frequencies extending from approximately 25 kHz below the operating frequency to approximately 25 kHz above that frequency, at intervals of approximately 5 kHz. The measured values shall be plotted on a linear graph, with frequency as the abscissa and resistance as the ordinate. A smooth curve shall be drawn through the plotted values. The resistance value corresponding to the point of intersection of the curve and the ordinate representing the operating frequency of the station shall be the resistance of the antenna.

(2) For a directional antenna, the reactance of the antenna shall be determined by a procedure similar to that described in subparagraph (1) of this paragraph.

(d) [Reserved]

(e) Applications for authority to determine power by the direct method shall specify the antenna or common point resistance, and shall include the following supporting information.

(1) A full description of the method used to make measurements.

(2) A schematic diagram showing clearly all components of coupling circuits, the point of resistance measurement, location of antenna ammeter, connections to and characteristics of all tower lighting isolation circuits, static drains, and any other fixtures, sampling lines, etc., connected to or supported by the antenna, including other antennas and associated circuits. Any network or circuit component incorporated for the purpose of dissipating radio frequency power shall be specifically identified, and the impedances of all components which control the level of power dissipation, and the effective input resistance of the network shall be indicated.

(3) Make and type of each calibrated instrument employed, manufacturer's rated accuracy, together with

the date of last calibration of the instrument, the accuracy of the calibration, and the identity of the person or firm making the calibration.

(4) A tabulation of all measured data.

(5) Graph(s) plotted from this data.

(6) The qualifications of the person(s) making the measurements.

【§ 73.54 headnote and (e) (6) revised eff. 4-30-80; III(80)-1】

#### § 73.55 Modulation.

See § 73.1570.

#### § 73.56 Modulation monitors.

(a) Each AM station shall have installed either at the transmitter site, the extension meter location, or at the remote control point from which the transmitter is controlled, a properly operating modulation monitor of a type approved by the Commission. Except for stations that are operating with an automatic transmission system (ATS), the monitor shall be in continuous operation with the modulation level meter indications available to the operator on duty in charge of the transmitter.

(b) In the event that the modulation monitor becomes defective, the station may be operated without the monitor pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: *Provided, That:*

(1) Appropriate entries shall be made in the maintenance log of the station showing the date and time the monitor was removed and restored to service.

(2) The degree of modulation of the station shall be monitored with a cathode ray oscilloscope or other acceptable means.

(c) If conditions beyond the control of the licensee prevent the restoration of the monitor to service within the above allowed period, informal request in accordance with § 73.3549 of this chapter may be filed with the Engineer in Charge of the radio district in which the station is operating for such additional time as may be required to complete repairs of the defective instrument.

(d) Positive modulation peaks to 125% is an absolute limit. Licensees using positive peaks exceeding 100% must have a type approved modulation monitor with an indicating range sufficient to indicate the peak modulation utilized to insure compliance at all times with the positive peak limitations of § 73.1570.

NOTE:—Provisions of paragraph (d) are stayed indefinitely until further notice. In the interim, each licensee may employ appropriate means such as an oscilloscope, composite indicating device, or type-approved modulation monitor with sufficient calibration range to comply with this requirement.

#### § 73.57 Remote reading antenna and common point ammeters.

Remote reading antenna and common point ammeters may be used without further authority according to the following conditions:

(a) Remote reading antenna or common point ammeters may be provided by :

(1) Inserting second radio frequency current sensing device directly in the antenna circuit with remote leads to the indicating instruments.

(2) Inductive coupling to radio frequency current sensing device for providing direct current to indicating instrument.

(3) Capacity coupling to radio frequency current sensing device for providing direct current to indicating instrument.

(4) Current transformer connected to radio frequency current sensing device for providing direct current to indicating instrument.

(5) Using transmission line current meter at transmitter as remote reading ammeter. See paragraph (c) of this section.

(6) Using the indications of the antenna (phase) monitor, provided that when the monitor is used to obtain remote reading indication of non-directional antenna base current, the monitor calibration can be independently made and maintained for each mode of operation.

(b) Devices used for obtaining remote reading antenna or common point current indications, except antenna monitor coupling elements, shall be located at the same point as, but below (transmitter side) the associated main ammeter.

(c) In the case of shunt-excited antennas, the transmission line current meter at the transmitter may be considered as the remote antenna ammeter provided the transmission line is terminated directly into the excitation circuit feed line, which shall employ series tuning only (no shunt circuits of any type shall be employed) and insofar as practicable, the type and scale of the transmission line meter should be the same as those of the excitation circuit feed line meter (meter in slant wire feed line or equivalent).

(d) Calibration of remote reading ammeters shall be made against their corresponding regular ammeters for each mode of operation as often as necessary to insure their accuracy, but at least once each calendar week, and :

(1) The result of such calibrations shall be entered in the station's maintenance log.

(2) In no event shall a remote reading ammeter be calibrated against another remote reading, extension, or remote control meter.

(3) Each remote reading ammeter shall be accurate within 2 percent of the value read on its corresponding regular ammeter.

(e) All remote reading ammeters shall conform with the specifications for regular antenna ammeters.

(f) Meters with arbitrary scale divisions may be used provided that calibration charts or curves are provided at the transmitter control point showing the relationship between the arbitrary scales and the reading of the main meters.

(g) If a malfunction affects the remote reading indications of the antenna or common point ammeter, the operating power may be determined by the indirect method using the procedures described in § 73.51(e) for a period not to exceed 60 days. Alternatively, the operating power may be determined by the direct method on a continued basis by reading the regular antenna or common point ammeters with indications entered in the operating log once each day for each mode of operation until the defective remote metering is repaired.

#### § 73.58 Indicating instruments.

(a) Each AM broadcast station shall be equipped with indicating instruments which conform with the specifications described in § 73.1215 for determining power by the direct and indirect methods, and with such other instruments as are necessary for the proper adjustment, operation, and maintenance of the transmitting system.

(b) A thermocouple type ammeter, or other device capable of providing an indication of radio frequency current at the base of each antenna element, meeting requirements of § 73.1215, shall be permanently installed in the antenna circuit or a suitable jack and plug arrangement may be made to permit removal of the meter from the antenna circuit so as to protect it from damage by lightning. Where a jack and plug arrangement is used, contacts shall be made of silver and capable of operating without arcing or heating, and shall be protected against corrosion. Insertion and removal of the meter shall not interrupt the transmissions of the station. When removed from the antenna circuit, the meter shall be labelled to clearly identify the tower in which it is used, and shall be stored in a location which is readily available to that tower. Care shall be exercised in handling the meter to prevent damage which would impair its accuracy. Where the meter is permanently connected in the antenna circuit, provision may be made to short or open the meter circuit when it is not being used to measure antenna current. Such switching shall be accomplished without interrupting the transmission of the station.

(c) Since it is usually impractical to measure the actual antenna current of a shunt excited antenna system, the current measured at the input of the excitation circuit feed line is accepted as the antenna current.

(d) The function of each instrument shall be clearly and permanently shown on the instrument itself or on the panel immediately adjacent thereto.

(e) In the event that any one of these indication instruments becomes defective when no substitute which conforms with the required specifications is available, the station may be operated without the defective instrument pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: *Provided, That:*

(1) Appropriate entries shall be made in the maintenance log of the station showing the date and time the meter was removed from and restored to service.

(2) If the defective instrument is an antenna base current ammeter of a directional antenna system, the indications required to be read and logged may be obtained from the antenna monitor pending the return to service of the regular meter, provided other parameters are maintained at their normal values.

(3) If the defective instrument is the antenna current meter of a non-directional station which does not employ a remote antenna ammeter, or if the defective instrument is the common point meter of a station which employs a directional antenna and does not employ a remote common point meter, the operating power shall be determined by the indirect method in accordance with § 73.51 (d), (e), and (f) during the entire time the station is operated without the antenna current meter or common point meter. However, if a remote antenna ammeter or a remote common point meter is employed and the antenna current meter or common point meter becomes defective, the remote meter shall be used in determining operating power by the direct method pending the return to service of the regular meter.

(f) If conditions beyond the control of the licensee prevent the restoration of the meter to service within the above allowed period, information requested in accordance with § 73.3549 may be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

**§ 73.59 Frequency tolerance.**

See § 73.1545.

**§ 73.60 Frequency measurements.**

See § 73.1540.

**§ 73.61 [Reserved]**

**§ 73.62 Directional antenna system tolerances.**

Each AM station operating a directional antenna must maintain the indicated relative amplitudes of the antenna base currents and antenna monitor currents within 5% of the values specified on the instrument of authorization, unless other tolerances are specified therein.

**§ 73.63 Auxiliary transmitter.**

See § 73.1670.

**§ 73.64 Alternate main transmitter.**

See § 73.1665.

**§ 73.65 Antenna structure, marking and lighting.**

See § 73.1213.

**§ 73.66 Remote control authorizations.**

(a) The licensee of an AM station using a nondirectional antenna may operate by remote control without specific authorization from the FCC. Written notice giving the address and description of the remote control point being used must be sent to the FCC in Washington, D.C., within 3 days of commencing remote control operation. When a remote control point is at an address or location other than that of either the authorized transmitter or studio facilities, the licensee must also send a notice to the engineer in charge of the radio district in which the station is located. This additional notice is to include the full address, location, and telephone number of the remote control point.

(b) Authority to operate an AM station using a directional antenna system by remote control from any remote control point is obtained using the following procedures:

(1) An application for a construction permit to erect a new or make modifications in an existing directional antenna, subject to the sampling system requirements of § 73.68, may request remote control authorization on the permit application FCC Form 301 (FCC Form 340 for noncommercial educational stations).

(2) An existing licensee or permittee having a sampling system in compliance with the provisions of § 73.68 (a) must request remote control authorization on FCC Form 301-A, and submit information showing that the directional antenna sampling system has been constructed according to the specifications of § 73.68 (a).

(3) An existing station not having an approved directional sampling system in compliance with the provisions of § 73.68 (a) must request remote control authorization on FCC Form 301-A, and submit information showing that the directional antenna is in proper adjustment and further showing the stability of the antenna system during the 1-year period specified in section II of Form 301-A.

**§ 73.67 Remote control operation.**

(a) Operation by remote control shall be subject to the following conditions:

(1) The equipment at the operating and transmitting positions shall be so installed and protected that it is not accessible to or capable of operation by persons other than those duly authorized by the licensee.

(2) The control circuits from the operating positions to the transmitter shall provide positive on and off control and shall be such that open circuits, short circuits, grounds or other line faults will not actuate the transmitter and any fault causing loss of such control will automatically place the transmitter in an inoperative position.

(3) A malfunction of any part of the remote control system resulting in improper control shall be cause for the immediate cessation of operation by remote con-

trol. A malfunction of any part of the remote control system which results in inaccurate meter indications used in determining operating power or directional antenna performance shall be cause for the termination of use of remote control no longer than 1 hour after the malfunction is detected. If the malfunction only affects the indications of the antenna or common point ammeter, the operating power may be determined by the indirect method using the procedures described in § 73.51 (e) for a period not to exceed 60 days.

(4) Control and monitoring equipment shall be installed so as to allow the licensed operator at the remote control point to perform all the functions in a manner required by the Commission's rules.

(5) Calibration of required indicating instruments at each remote control point shall be made against their corresponding instruments at the transmitter site for each mode of operation as often as necessary to insure their accuracy, but in no event less than once a week, and:

(i) The results of such calibration shall be entered in the station's maintenance log;

(ii) In no event shall a remote control meter be calibrated against another remote control meter;

(iii) Each remote control meter shall be accurate within 2 percent of the value read on its corresponding meter at the transmitter site.

(6) All remote control meters shall conform with the specifications prescribed of regular transmitter, antenna, and monitor meters. Devices used for obtaining remote control meter indications of antenna or common point current shall be installed according to the conditions described in paragraphs (a) and (b) of § 73.57.

(7) Meters with arbitrary scale divisions may be used provided that calibration charts or curves are provided at the transmitter remote control point showing the relationship between the arbitrary scales and the reading of the main meters.

(8) The negative percentage of modulation indications of the modulation monitor shall be continuously available at the remote control point(s), except when other transmission system meter readings are being taken. The modulation level indications shall be continuously monitored between meter readings unless the transmission system is equipped with an automatic device to limit the modulation so as not to exceed the peak levels specified in § 73.1570.

(b) [Reserved]

(c) The broadcast transmitter carrier may be amplitude modulated with a tone for the purpose of transmitting to the remote control point essential meter indications and other data on the operational condition of the broadcast transmitter and associated devices, subject to the following conditions:

(1) The tone shall have a frequency no higher than 30 hertz.

(2) The amplitude of modulation of the carrier by the tone shall not be higher than necessary to effect

reliable and accurate data transmission, and shall not, in any case, exceed 6 percent.

(3) The tone shall be transmitted only at such time and during such intervals that the transmitted information is actually being observed or logged.

(4) Measures shall be employed to insure that during the periods the tone is being transmitted, the total modulation of the carrier must conform with the requirements of § 73.1570.

(5) Such tone transmissions shall not significantly degrade the quality of program transmission or produce audible effects resulting in public annoyance.

(d) Stations using directional antennas when operated by remote control, and not having an approved sampling system, must make a skeleton proof of performance as defined in § 73.154, at least once each calendar year. The results of each proof, signed and dated by the qualified person who made it, must be kept on file at the transmitter or remote control point for a period of 3 years, and on request must be made available during that time to authorized representatives of the FCC.

#### § 73.68 Sampling systems for antenna monitors.

(a) The following requirements govern the installation of systems employed to extract samples of the currents flowing in the elements of a directional antenna, and to deliver these samples to the antenna monitor. Each new station issued a construction permit, each existing station issued a construction permit authorizing tower construction, and any existing station undertaking modification or reconstruction of its sampling system must install the system meeting the following requirements. The application for license or modification of license must describe the system in sufficient detail to demonstrate its compliance with the following:

(1) All coaxial cable from the sampling elements to the antenna monitor, including cable used in the construction of isolation coils, except short lengths of flexible cable connecting the transmitter house sampling line termination to the monitor, shall have a solid outer conductor and have uniform physical and electrical characteristics. The dielectric shall either be predominantly pressurized air or other inert gas, or foamed polyethylene. All sampling lines for a critical antenna array (i.e., an array for which the station authorization requires the maintenance of phase and current relationships within specified tolerances) shall be of the same electrical length with corresponding lengths of all lines exposed to equivalent environmental conditions. For other arrays, lines of differing lengths may be employed, provided that the difference in length between the longest and shortest lines is not so great that, over the range of temperatures to which the system is exposed, predicted errors in indicated phase difference resulting from such temperature changes will exceed 0.5 degrees. All sampling line mounted on a tower shall be adequately supported to prevent displacement, and shall be protected against physical damage. Where feasible, sampling line sec-



(3) If that portion of the sampling system above the base of the towers is modified or components replaced, a partial proof of performance shall be executed subsequent to these changes consisting of at least 10 field strength measurements on each of the radials established in the latest complete proof of performance of the antenna system. These measurements shall be made at locations, all within 2 to 10 miles from the antenna, which were utilized in such proof, including, on each radial, the location, if any, designated as a monitoring point in the station authorization. Measurements shall be analyzed in the manner prescribed in § 73.186. The partial proof performance shall be accompanied by common point impedance measurements made in accordance with § 73.54.

(4) Request for modification of license shall be submitted to the Commission in Washington, D.C., within 30 days of the date of sampling system modification or replacement. Such request shall specify the transmitter plate voltage, and plate current, common point current, base currents and their ratios, antenna monitor phase and current indications, and all other data obtained pursuant to this paragraph (e).

(f) If an existing sampling system is found to be patently of marginal construction, or where the performance of a directional antenna is found to be unsatisfactory, and this deficiency reasonably may be attributed, in whole or in part, to inadequacies in the antenna monitoring system, the FCC may require the reconstruction of the sampling system in accordance with requirements specified above.

#### § 73.69 Antenna monitors.

(a) Each station using a directional antenna must have in operation at the transmitter site an FCC type

approved antenna monitor. However, if the station authorization sets specific tolerances within which the phase and amplitude relationships must be maintained, or requires the use of a monitor of specified repeatability, resolution or accuracy, the antenna monitor used will be authorized on an individual basis.

(1) Normally, the antenna monitor is to be installed immediately adjacent to the transmitter and antenna phasing equipment. When the phasing equipment is located within the antenna field at a distance from the transmitter, the monitor may be located with the phasing equipment in suitable housing such that the temperature variation is maintained at all times within those limits under which the monitor was type approved. Additionally, remote switching and metering must be installed so that all required monitor indications can be observed at the position(s) where the duty operator is located.

(2) The antenna monitor installed at a station operating a directional antenna by remote control, using extension meters to read and log the monitor indications, or when the monitor is installed in the antenna field at a distance from the transmitter, must be designed and type approved for such use in accordance with the provisions of § 73.53(c)(9).

(b) In the event an antenna monitor becomes defective, the station may be operated without the monitor pending its repair or replacement for a period not in excess of 60 days without further authority from the Commission: *Provided, That:*

(1) Appropriate entries shall be made in the maintenance log of the station showing the date and time the monitor was removed and restored to service.

(2) The base currents, their ratios, and the deviations of those ratios, in percent, from the values

tions between each tower base and the transmitter house shall be jacketed and buried; lines run above ground shall be firmly supported, and protected against physical damage, with the outer conductor strapped to the station's ground system at such points as found necessary to minimize currents induced by antenna radiation. All necessary connections, and outdoor cable terminations shall be made with waterproof fittings, designed for use with the type of cable employed. For determining the permissible difference in line lengths that may be installed, the total difference between the highest listed normal daily maximum and lowest listed normal daily minimum temperatures as shown for the nearest location shown in the most recent issue of "Local Climatological Data Annual Summaries" shall be used in the calculations. This publication is available from:

National Climatic Center

National Oceanic and Atmospheric Administration  
Asheville, North Carolina 28801

(2) Sampling elements shall be single turn, unshielded loops of extremely rigid construction, with ample, firmly positioned gaps at the open loop end, mounted on towers at a fixed orientation, provided that, for uniform cross section towers of 110 degrees or less in electrical height, adequately shielded current transformers may be used to extract samples from the antenna feed line at each tower base. Loops shall be installed to operate at tower potential, provided that, for towers of less than 130 degrees in electrical height, loops operating at ground potential may be employed. Generally, each loop should be mounted on the tower near the point of maximum tower current, but in no case less than 10 feet above ground.

(b) Each license or modified license issued pursuant to an application containing a satisfactory showing that a sampling system has been constructed complying with the requirements set forth in subparagraphs (1) and (2) of paragraph (a) of this section, and that an antenna monitor of a make and type approved by the Commission has been installed, will be conditioned to exempt the licensee from compliance with rules which require:

(1) The routine reading and logging of base currents in the array elements.

(2) That monitoring point measurements be made more frequently than at average monthly intervals.

(3) The readings and maintenance log entries specified in § 73.1830 (a) (2) (iv).

(4) The annual skeleton proof of performance measurements made as required by § 73.67 (d) for remote control operation.

(5) The skeleton proof of performance measurements as required by § 73.93 (e) (3) for stations using persons holding other than first-class radio-telephone operator licenses during transmissions with directional antenna.

(c) An existing station with an antenna monitor sampling system meeting the specifications of paragraphs (a) (1) and (2) of this Section, wishing to be

exempted from the logging and measurement requirements listed in paragraph (b) may send an informal request to the FCC in Washington, D.C. The request must be signed by the licensee or officer of the licensee and contain sufficient information to show compliance with the requirements of paragraph (a), including the following:

(1) The brand and type number of the coaxial sampling line cable, with a description of the dielectric material and electrical characteristics.

(2) The overall length of each sampling line. If cables of different length are installed, the calculations to show that the phase difference of signals at the monitor are less than 0.5 degrees between the shortest and longest cable lengths.

(3) A description of the sampling elements (loops or current transformers) and the position of their installation, and when loops are installed, whether bonded or insulated mounting is used.

(d) In the event the antenna monitor sampling system is temporarily out of service, the station may be operated without logging the monitor indications pending completion of repairs for a period not exceeding 60 days without further authority from the Commission, provided that:

(1) Appropriate entries shall be made in the maintenance log of the station showing the date and time the sampling system was removed from and restored to service.

(2) The base currents, their ratios, and the deviations of those ratios, in percent, from values specified in the station authorization shall be determined and entered in the maintenance log each day for each radiation pattern used.

(3) Field strength measurements at each monitoring point specified in the station's authorization shall be read and logged at least once every seven (7) days.

(e) If the antenna sampling system is modified or components of the sampling system are replaced, the following procedure shall be followed:

(1) Temporary authority shall be requested and obtained from the Commission in Washington to operate with parameters at variance with licensed values pending issuance of a modified license specifying parameters subsequent to modification or replacement of components.

(2) Immediately prior to modification or replacement of components of the sampling system not on the towers, and after a verification that all monitoring point values, base current ratios and operating parameters are within the limits or tolerances specified in the instrument of authorization or the pertinent rules, the following indications shall be read and recorded, in the maintenance log for each radiation pattern: Final plate current and plate voltage, common point current, base currents and their ratios, antenna monitor phase and current indications, and the field strength at each monitoring point. Subsequent to these modifications or changes the above procedure shall be repeated.

(3) If that portion of the sampling system above the base of the towers is modified or components replaced, a partial proof of performance shall be executed subsequent to these changes consisting of at least 10 field strength measurements on each of the radials established in the latest complete proof of performance of the antenna system. These measurements shall be made at locations, all within 2 to 10 miles from the antenna, which were utilized in such proof, including, on each radial, the location, if any, designated as monitoring point in the station authorization. Measurements shall be analyzed in the manner prescribed in § 73.186. The partial proof performance shall be accompanied by common point impedance measurements made in accordance with § 73.54

(4) Request for modification of license shall be submitted to the Commission in Washington, D.C., within 30 days of the date of sampling system modification or replacement. Such request shall specify the transmitter plate voltage, and plate current, common point current, base currents and their ratios, antenna monitor phase and current indications, and all other data obtained pursuant to this paragraph (e).

(f) If an existing sampling system is found to be patently of marginal construction, or where the performance of a directional antenna is found to be unsatisfactory, and this deficiency reasonably may be attributed, in whole or in part, to inadequacies in the antenna monitoring system, the FCC may require the reconstruction of the sampling system in accordance with requirements specified above.

#### § 73.69 Antenna monitors.

(a) Each station utilizing a directional antenna shall have in operation at the transmitter an antenna monitor which is of a type approved by the Commission: *Provided, however,* That if the instrument of authorization of the station sets specific tolerances within which phase and amplitude relationships must be maintained, or requires the use of a monitor of specified repeatability or accuracy, the antenna monitor employed under such circumstances shall be authorized on an individual basis. The antenna monitor installed at a station operating a directional antenna by remote control or using extension meters to read and log the monitor indications shall be designed and type approved for such use in accordance with the provisions of § 73.53 (c) (9).

(b) In the event an antenna monitor becomes defective, the station may be operated without the monitor pending its repair or replacement for a period not in excess of 60 days without further authority from the Commission: *Provided, That:*

(1) Appropriate entries shall be made in the maintenance log of the station showing the date and time the monitor was removed and restored to service.

(2) The base currents, their ratios, and the deviations of those ratios, in percent, from the values specified in the station authorization shall be determined and entered in the maintenance log once each day for each radiation pattern used.

(3) Field strength measurements at each monitoring point specified in the station's authorization shall be read and logged at least once every 7 days.

(c) If conditions beyond the control of the licensee prevent the restoration of the monitor to service within the allowed period, informal request in accordance with § 73.3549 of the Commission's rules must be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

(d) If an authorized antenna monitor is placed by another antenna monitor, the following procedure shall be followed:

(1) Temporary authority shall be requested and obtained from the Commission in Washington to operate with parameters at variance with licensed values, pending issuance of a modified license specifying new parameters.

(2) Immediately prior to the replacement of the antenna monitor, after a verification that all monitoring point values and base current ratios are within the limits or tolerances specified in the instrument of authorization or the pertinent rules, the following indications shall be read and recorded in the maintenance log for each radiation pattern: Final plate current and plate voltage, common point current, base currents, antenna monitor phase and current indications, and the field strength at each monitoring point.

(3) With the new monitor substituted for the old, all indications specified in paragraph (d) (2) of this section, again shall be read and recorded. If no change has occurred in the indication for any parameter other than the indications of the antenna monitor the new antenna monitor indications shall be deemed to be those reflecting correct array adjustments.

(4) If it cannot be established by the observations required in paragraph (d) (2) of this section that base current ratios and monitoring point values are within the tolerances or limits prescribed by the rules and the instrument of authorization, or if the substitution of the new antenna monitor for the old results in changes in these parameters, a partial proof of performance shall be executed, as described in § 73.154 and measurements shall be analyzed in the manner required in § 73.186.

(5) An informal request for modification of license shall be submitted to the Commission in Washington, D.C., within 30 days of the date of monitor replacement. Such request shall specify the make, type, and serial number of the replacement monitor, phase and sample current indications, and other data obtained pursuant to this paragraph (d).

(e) The antenna monitor shall be calibrated once each calendar week according to manufacturer's instructions and a notation entered in the maintenance log.

#### § 73.70 Extension meters.

See § 73.1550.

specified in the station authorization shall be determined and entered in the maintenance log once each day for each radiation pattern used.

(3) Field strength measurements at each monitoring point specified in the station's authorization shall be read and logged at least once every 7 days.

(c) If conditions beyond the control of the licensee prevent the restoration of the monitor to service within the allowed period, informal request in accordance with § 73.3549 of the Commission's rules must be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

(d) If an authorized antenna monitor is replaced by another antenna monitor, the following procedure shall be followed:

(1) Temporary authority shall be requested and obtained from the Commission in Washington to operate with parameters at variance with licensed values, pending issuance of a modified license specifying new parameters.

(2) Immediately prior to the replacement of the antenna monitor, after a verification that all monitoring point values and base current ratios are within the limits or tolerances specified in the instrument of authorization or the pertinent rules, the following indications shall be read and recorded in the maintenance log for each radiation pattern: Final plate current and plate voltage, common point current, base currents, antenna monitor phase and current indications, and the field strength at each monitoring point.

(3) With the new monitor substituted for the old, all indications specified in paragraph (d)(2) of this section, again shall be read and recorded. If no change has occurred in the indication for any parameter other than the indications of the antenna monitor the new antenna monitor indications shall be deemed to be those reflecting correct array adjustments.

(4) If it cannot be established by the observations required in paragraph (d)(2) of this section that base current ratios and monitoring point values are within the tolerances or limits prescribed by the rules and the instrument of authorization, or if the substitution of the new antenna monitor for the old results in changes in these parameters, a partial proof of performance shall be executed, as described in § 73.154 and measurements shall be analyzed in the manner required in § 73.186.

(5) An informal request for modification of license shall be submitted to the Commission in Washington, D.C., within 30 days of the date of monitor replacement. Such request shall specify the make, type, and serial number of the replacement monitor, phase and sample current indications, and other data obtained pursuant to this paragraph (d).

(e) The antenna monitor shall be calibrated once each calendar week according to manufacturer's instructions and a notation entered in the maintenance log.

【§ 73.69(a) amended eff. 4-30-80; III(80)-1】

#### § 73.70 Extension meters.

See § 73.1550.



## OPERATION

**§ 73.71 Minimum operation schedule.**

See § 73.1740.

**§ 73.72 Operating during the experimental period.**

(a) An AM station may operate during the experimental period on its assigned frequency and with its authorized power for the routine testing and maintenance of its transmitting system, and for conducting experimentation under an experimental authorization; provided no interference is caused to other stations maintaining a regular operating schedule within such period.

(b) No station licensed for "daytime" or "specified hours" of operation may broadcast any regular or scheduled program during this period.

(c) The licensee of an AM station shall operate or refrain from operating its station during the experimental period as directed by the FCC to facilitate frequency measurements or for the determination of interference.

**§ 73.73 Specified hours.**

See § 73.1730.

**§ 73.74 Sharing time.**

See § 73.1715.

**§ 73.76 Sharing time; experimental period.**

See § 73.1715.

**§ 73.77 Sharing time; departure from regular schedule.**

See § 73.1715.

**§ 73.78 Sharing time stations; notification to Commission.**

See § 73.1715.

**§ 73.79 License to specify sunrise and sunset hours.**

See § 73.1720.

**§ 73.80 Secondary station; filing of operating schedule.**

See § 73.1725.

**§ 73.81 Secondary station; failure to reach agreement.**

See § 73.1725.

**§ 73.82 Departure from schedule; material violation.**

See § 73.1725.

**§ 73.83 References to time.**

See § 73.1209.

**§ 73.87 Times and modes of program transmission.**

See § 73.1745.

**§ 73.88 Blanketing interference.**

The licensee of each broadcast station is required to satisfy all reasonable complaints of blanketing interference within the 1V/m contour.

**§ 73.89 [Deleted]****§ 73.91 Discontinuance of operation.**

See § 73.1750.

**§ 73.92 Station and operator licenses; posting of.**

See § 73.1230.

**§ 73.93 Operator requirements.**

(a) One or more operators holding a radio operator license or permit of a grade specified in this section shall be in actual charge of the transmitting system, and shall be on duty at the transmitter location, or at an authorized remote control point, or the position at which extension meters, as authorized pursuant to § 73.1550 of this Subpart are located. The transmitter and required monitors and metering equipment, or the required extension meters and monitoring equipment and other required metering equipment, or the controls and required monitoring and metering equipment in an authorized remote control operation, shall be readily accessible to the licensed operator and located sufficiently close to the normal operating location that deviations from normal indications of required instruments can be observed from that location.

(b) With the exceptions set forth in paragraph (f) of this section, adjustments of the transmitting system, and inspection, maintenance, required equipment performance measurements, and required field strength measurements shall be performed only by a first-class radiotelephone operator, or, during periods of operation when a first-class radiotelephone operator is in charge of the transmitter, by or under the direction of a broadcast consultant regularly engaged in the practice of broadcast station engineering.

(c) Stations using non-directional antennas with nominal operating power of 10 kW or less may employ persons holding any class of commercial radio operator license or permit for the routine duty operation of the transmitting system as defined in paragraph (f) of this section. In addition, such stations must employ at least one person holding a First-Class Radiotelephone Operator License either in the full-time or whatever less than full-time the licensee determines is needed to keep the station's technical operation in compliance with the FCC rules and terms of the station authorization. As an alternative to the employment of a first-class operator, the licensee may contract in writing for one or more first-class operators who will be readily available on a part-time basis. Signed contracts must be kept in the station file and made available for inspection upon request by authorized representatives of the FCC.

(d) A station using a non-directional antenna during periods of operation with an authorized power in excess of 10 kW may employ operators holding any class of commercial radio operator license or permit for routine duty operation of the transmitting system as defined in paragraph (f) of this Section. In addition, such stations must employ at least one operator holding a First-Class Radiotelephone Operator License in either full-time or whatever less than full-time employment the station licensee determines is needed to keep the station's technical operation in compliance with the FCC rules and terms of the station authorization.

(e) The licensee of an AM station using a directional antenna system may employ persons holding any class of commercial radio operator license or permit

for the routine duty operation of the transmitting system as defined in paragraph (f) of this Section. If the licensee elects to employ operators holding any class of license or permit other than a First-Class Radiotelephone Operator License for the routine duty operation of the transmitting system, the licensee must comply with the following:

(1) The station must employ at least one operator holding a First-Class Radiotelephone Operator License in either full-time or whatever less than full-time employment the station licensee determines is needed to keep the station's technical operation in compliance with the FCC rules and terms of the station authorization.

(2) [Reserved]

(3) Within 1 year of the date on which a chief operator is designated for the first time as required by paragraph (h) of this Section, the station must complete a partial proof of performance as defined in § 73.154 for the directional antenna system, and must complete subsequent partial proofs of performance at least once each 3 years thereafter, with not less than 33 nor more than 36 months between successive proofs.

For stations not having an approved sampling system pursuant to § 73.68(a), a skelton proof of performance, as defined in § 73.154 must be completed during each year that a partial proof of performance is not required. Not less than 10, nor more than 14 months, may elapse between the completion dates of successive proofs of performance. The results of each proof, signed and dated by the qualified person(s) making it, must be kept on file at the transmitter or remote control point for a period of 3 years, and be made available during that time on request by authorized representatives of the FCC.

(4) Field strength measurements shall be made at the monitoring points specified in the station authorization at least once each 30 days unless more frequent measurements are required by such authorization. The results of these measurements shall be entered in the station maintenance log. The licensee shall have readily available, and in proper working condition, field strength measuring equipment to perform these measurements.

(f) Subject to the conditions in paragraphs (c), (d), and (e) of this Section, operators not holding first class radiotelephone operator licenses may make adjustments only of external controls, as follows:

(1) Those necessary to turn the transmitter on and off;

(2) Those necessary to compensate for voltage fluctuations in the primary power supply;

(3) Those necessary to maintain modulation levels of the transmitter within prescribed limits;

(4) Those necessary to effect routine changes in operating power which are required by the station authorization;

(5) Those necessary to change between nondirectional and directional or between differing radiation

patterns, provided that such changes require only activation of switches and do not involve the manual tuning of the transmitter final amplifier or antenna phasor equipment. The switching equipment shall be so arranged that the failure of any relay in the directional antenna system to activate properly will cause the emissions of the station to terminate.

(g) It is the responsibility of the station licensee to insure that each operator is fully instructed in the performance of all the above adjustments, as well as in other required duties, such as reading meters and making log entries. Printed step-by-step instructions for those adjustments which the lesser grade operator is permitted to make, and a tabulation or chart of upper and lower limiting values of parameters required to be observed and logged, shall be posted at the operating position. The emissions of the station shall be terminated immediately whenever the transmitting system is observed operating beyond the posted parameters, or in any other manner inconsistent with the rules or the station authorization, and the above adjustments are ineffective in correcting the condition of improper operation, and a first-class radiotelephone operator is not present.

(h) When lesser grade operators are used, in accordance with paragraph (d) or (e) of this section, the station licensee must designate one First-Class Radiotelephone operator as the chief operator who, together with the licensee, shall be responsible for the technical operation of the station. The licensee may also designate another First-class Radiotelephone Operator as assistant chief operator, who will assume all responsibilities during absence of the designated chief operator. A copy of the designation must be posted with the license of the designated operator.

(1) [Reserved]

(2) The station licensee shall vest such authority in, and afford such facilities to the chief operator as may be necessary to insure that the chief operator's primary responsibility for the proper technical operation of the station may be discharged efficiently.

(3) At such time as the regularly designated chief operator is unavailable or unable to act as chief operator (e.g., vacations, sickness), and an assistant chief operator has not been designated or, if designated, for any reason is unable to assume the duties of the chief operator, the licensee must designate another first-class radiotelephone operator as acting chief operator on a temporary basis.

(4) The designated chief operator may serve as a routine duty transmitter operator at any station only to the extent that it does not interfere with the efficient discharge of his responsibilities as listed below.

(i) The inspection and maintenance of the transmitting system including the antenna system and required monitoring equipment.

(ii) The accuracy and completeness of entries in the maintenance log.

(iii) The supervision and instruction of all other station operators in the performance of their technical duties.

(iv) A review of completed operating logs to determine whether technical operation of the station has been in accordance with the rules and terms of the station authorization. After review, the chief operator shall sign the log and indicate the date and time of such review. If the review of the operating logs indicates technical operation of the station is in violation of the rules or terms of the station authorization, he shall promptly initiate corrective action. The review of each day's operating log shall be made within 24 hours, except that, if the chief operator is not on duty during a given 24 hour period, the logs must be reviewed within 2 hours after his next appearance for duty. In any case, the time before review shall not exceed 72 hours.

(i) The operator on duty at the transmitter or remote control point, may, at the discretion of the licensee and the chief operator, if any, be employed for other duties or for the operation of another radio station or stations in accordance with the class of operator's license which he holds and the rules and regulations governing such other stations: *Provided, however,* That such other duties shall not interfere with the proper operation of the AM broadcast transmitting system and keeping of required logs.

(j) At all AM broadcast stations, a complete inspection of the transmitting system and required monitoring equipment in use, shall be made by an operator holding a first-class radiotelephone license at least once each calendar week. The interval between successive required inspections shall not be less than 5 days. This inspection shall include such tests, adjustments, and repairs as may be necessary to insure operation in conformance with the provisions of this subpart and the current station authorization.

(k) Procedures for licensees employing full-time first-class radiotelephone duty operators to temporarily employ persons holding lesser grade licenses, or to employ a temporary pro-tem chief operator when the des-

ignated chief is incapacitated or unavailable are given in § 73.3547.

【§ 73.93 (c), (e) (3), and (h) (3) revised; (k) added; Eff. 4-30-80; III (80)-1】

#### § 73.95 Equipment tests.

See § 73.1610.

#### § 73.96 Program tests.

See § 73.1620.

#### § 73.97 Station inspection.

See § 73.1225.

#### § 73.98 Operation during emergency.

See § 73.1250.

#### § 73.99 Presunrise service authorizations (PSA).

(a) To provide the maximum uniformity in early morning operations compatible with interference considerations, the following classes of AM stations are eligible for presunrise service authority (PSA):

(1) Class II stations operating on Class I channels, except those operating on Canadian Class I-A clear channels and those located east of co-channel U.S. Class I-A stations.

(2) Class III stations.

(b) A presunrise service authorization will permit:

(1) Class II stations operating on Mexican and Bahamian i-A clear channels to commence operation with their daytime antenna systems at 6:00 a.m. local time, and to continue such operation until the sunrise time specified in their basic instrument of authorizations;

(2) Class II stations situated outside the respective 0.5 mV/m 50% contours of co-channel domestic Class I-B stations, to commence PSA operation at 6:00 a.m. local time, and continue this operation until the sunrise times specified in their basic instruments of authorization.

(3) Other Class II stations, where eligible under paragraph (a) (1) of this Section to commence PSA operation with their daytime or critical hours antenna systems either at 6:00 a.m. local time, or at the time

of sunrise at the nearest Class I station located east of the Class II station (whichever is later), and continue this operation until the sunrise times specified in their basic instruments of authorization.

(4) Class III stations to commence operation with their daytime antenna systems at 6:00 a.m. local time and to continue such operation until local sunrise times specified in their basic instruments of authorization.

(c) The permissible power to be specified in the presunrise service authorization (PSA) will not exceed 500 watts (or the authorized daytime or critical hours power, if less than 500 watts), or such lesser power as may be determined by computations made pursuant to paragraph (d) of this Section.

(d) Requests for presunrise service authority will be treated as proposals for minor changes in existing facilities, not subject to the provisions of §§ 73.3571 and 73.3850. Further, such requests are not subject to the procedural requirements or remedies applicable to applications for new facilities or major changes therein. PSA requests shall be submitted by letter, signed as specified in § 73.3513 with the following information:

(1) *All stations.*

(i) licensee name, station call letters and station location,

(ii) a description of the method whereby any proposed power reduction will be achieved.

(2) *Class II stations.* (i) For Class II stations operating on Class I channels, other than Class I-A channels, a showing that objectionable interference as determined by the AM Broadcast Technical Standards (Sections 73.182 to 73.190), or by the engineering standards of the NARBA (whichever is controlling), will not be caused within the 0.5 mV/m 50% skywave contour of any domestic Class I-B station or of a Class I-B station in any country signatory to the NARBA.

(ii) For Class II stations operating on Mexican Class I-A clear channels, and for Class II stations located east of co-channel Mexican Class I-B stations, a showing under the engineering standards of the United States/Mexican Agreement that the Class II station does not produce a signal in excess of 25 uV/m 10% skywave at any point on the co-channel Mexican Class

I station's 0.5 mV/m 50% skywave contour which falls on Mexican territory, or more than 50 uV/m 10% skywave at any point on the Mexican border or boundary where the signal of the Mexican Class I station exceeds 0.5 mV/m-50% skywave in strength.

(iii) For all Class II stations, the applicant must show that foreign Class II stations (if any) assigned to the same channel as the U.S. Class II station will receive full protection under the standards for nighttime operation set forth in the applicable agreement. If the protections specified in (i) or (ii) above cannot be achieved by the Class II station while operating with 500 watts, a showing may be submitted to establish the level to which power must be limited to preclude objectionable interference. In relation to Canadian Class II stations, the permissible power level may be established in the manner described in (3) below by the use of Figure 12 of § 73.190.

(iv) Class II PSA applicants for the Bahamian I-A clear channel (1540 kHz) need not submit the nighttime interference study required of other PSA applicants under this paragraph. Instead, the FCC will assign a power and the time of commencement of presunrise operation consistent with the provisions of the U.S.-Bahamian presunrise agreement (1974) and the protection requirements of U.S. I-B and foreign Class II full-time station assignments on this frequency.

(3) *Class III stations.* For Class III stations the applicant must show that co-channel stations in foreign countries will receive full treaty protection. If such protection cannot be achieved on the basis of 500 watt operation, calculations may be submitted to establish the level to which power must be reduced to preclude objectionable interference. With respect to Canadian Class III stations, such power level may be established by a showing that the radiation at the pertinent vertical angle toward co-channel Canadian stations does not exceed that defined in Figure 12 of § 73.190. If the latter showing cannot be made on the basis of 500 watt operation, calculations may be submitted to establish the level to which power must be reduced in order to limit radiation at the pertinent vertical angle to the values specified in Figure 12 of § 73.190.

(e) Calculations made under paragraph (d) of this Section may not take outstanding PSA's into account, nor will the grant of a PSA confer any degree of interference protection on the holder thereof.

(f) Operation under a PSA is not mandatory, and will not be included in determining compliance with the requirements of § 73.1740. To the extent actually undertaken, however, presunrise operation will be considered by the FCC in determining overall compliance with past programming representations and station policy concerning commercial matter.

(g) The PSA is secondary to the basic instrument of authorization and may be suspended, modified, or withdrawn by the FCC without prior notice or right to hearing, if necessary to resolve interference conflicts, to implement agreements with foreign governments, or in other circumstances warranting such action.

(h) The PSA will be issued for a term coinciding with the current basic instrument of authorization and, unless surrendered by the holder or suspended, modified or withdrawn by the FCC will have continuing or renewed effect succeeding instruments.

(i) The issuance of a PSA is intended to indicate the waiver of §§ 73.45, 73.182, 73.188, and 73.1560 where the operation might otherwise be considered as technically substandard. Further, the requirements of paragraphs (a) (5), (b) (2), (c) (2), and (d) (2) of § 73.1215 concerning the scale ranges of transmission system indicating instruments are waived for PSA operation except for the radio frequency ammeters used in determining antenna input power.

(j) A station having an antenna monitor incapable of functioning at the authorized PSA power when using a directional antenna shall take the monitor reading using unmodulated carrier at the authorized daytime power immediately prior to commencing PSA operations. Special conditions as the FCC may deem appro-

priate may be included in the PSA to insure operation of the transmitter and associated equipment in accordance with all phases of good engineering practice.

(k) In the event of permanent discontinuance of presunrise operation, the PSA shall be forwarded to the FCC's Washington office for cancellation, and the Engineer in Charge of the radio district in which the station is located must also be concurrently notified.

【§ 73.99 amended eff. 4-30-80; (a) (1), (b) (2), (b) (3), and (d) (2) (1) revised, (b) (4), added eff. 4-17-81; III (80)-1】

§ 73.111 General requirements relating to logs.  
See § 73.1800.

§ 73.112 **【Removed】**

【§ 73.112 removed eff. 4-3-81; III (80)-1】

§ 73.113 Operating logs.  
See § 73.1820.

§ 73.114 Maintenance logs.  
See § 73.1830.

§ 73.115 Retention of logs.  
See § 73.1840.

§ 73.116 Availability of logs and records.  
See §§ 73.1225 and 73.1850.

§ 73.117 Station identification.  
See § 73.1201.

§ 73.119 Sponsorship identification.  
See § 73.1212.

§ 73.120 Broadcasts by candidates for public office.  
See § 73.1940.

§ 73.122 Lotteries.  
See § 73.1211.



**§ 73.123 Personal attacks; political editorials.**

See §§ 73.1910, 73.1920, and 73.1930.

**§ 73.124 Fraudulent billing practices.**

See § 73.1205.

**§ 73.125 Equal employment opportunities.**

See § 73.2080.

**§ 73.126 Broadcast of telephone conversations.**

See § 73.1206.

**§ 73.127 [Deleted]**

**LICENSING POLICIES**

**§ 73.131 [Deleted]**

**§ 73.132 Territorial exclusivity.**

No licensee of an AM broadcast station shall have any arrangement with a network organization which prevents or hinders another station serving substantially the same area from broadcasting the network's programs not taken by the former station, or which prevents or hinders another station serving a substantially different area from broadcasting any program of the network organization: *Provided, however,* That this section does not prohibit arrangements under which the station is granted first call within its primary service area upon the network's programs. The term "network organization" means any organization originating program material, with or without commercial messages, and furnishing the same to stations interconnected so as to permit simultaneous broadcast by all or some of them. However, arrangements involving only stations under common ownership, or only the rebroadcast by one station or programming from another with no compensation other than a lump-sum payment by the station rebroadcasting, are not considered arrangements with a network organization. The term "arrangement" means any contract, arrangement or understanding, expressed or implied.

**§ 73.133-138 [Deleted]**

**§ 73.139 Special rules relating to contracts providing for reservation of time upon sale of a station.**

See § 73.1150.

**§ 73.140 Use of automatic transmission systems (ATS).**

(a) The licensee of an AM broadcast station may, when operating with a non-directional antenna system, utilize an automatic transmission system in accordance with this section and §§ 73.142, 73.144 and 73.146 in lieu of either direct or remote control of the station transmitting system.

(b) Authorization to use an automatic transmission system may be obtained by submitting an informal request to the Commission in Washington, D.C. Such request shall be signed by the licensee and contain a statement certified by the station's chief operator, technical director, or consulting engineer showing that

the station has installed and fully tested all the necessary apparatus for ATS operation and that the station is in full compliance with the prescribed technical standards for ATS operation and all other technical standards in this subpart applicable to the particular class of station.

(c) Upon receipt of notification from the Commission, the station can commence full ATS operation under the following special conditions:

(1) The operating log entries specified in § 73.1820 (a) (1) (iv) need not be made.

(2) [Reserved]

(3) The station may employ at least one radiotelephone first-class operator in accordance with the provisions of § 73.93(c) in lieu of the requirements of § 73.93 (d) and (h).

(4) In lieu of the schedule of transmitting system equipment inspections specified in § 73.93(j), the inspections shall be made once each calendar month with the intervals between successive required inspections not to be less than 20 days.

(5) Continuous operation of the station modulation monitor is not required.

(d) A station utilizing ATS must comply with the provisions of Subpart G of this part at all times.

(e) The transmitting apparatus must be manually activated at the beginning of each broadcast day.

**[§ 73.140(c) (2) removed and marked "Reserved" eff. 4-30-80; III(80)-1]**

**§ 73.142 Automatic transmission system facilities.**

(a) The licensee of an AM broadcast station may design, construct, install, and test the necessary equipment for ATS operation or obtain, install and test such equipment if it is compatible with the transmitting equipment with which it is to be used. The licensee may, without further authority, make the necessary modifications in the station transmitting equipment to accommodate ATS monitoring and control devices provided that the transmitting system will comply with all applicable technical specifications included in the regulations of this subpart.

(b) The transmitting apparatus of an AM station utilizing an automatic transmission system shall be equipped according to the following:

(1) The control system must have devices to monitor and control the antenna input power by sampling and evaluating the antenna current without the effects of modulation. Antenna current is to be sampled at the same point in the antenna circuit as the antenna ammeter but below (transmitter side) the ammeter. The indirect method of power determination may also be used on a temporary basis under the provisions of Section 73.51(d) if the system has devices to monitor and control the antenna input power by that method.

(2) The control system must have devices to automatically adjust to antenna input power to the authorized power for each mode of operation within the range specified in § 73.52(a). If the automatic control device is unable to adjust the antenna input power to a level

below 105% of the authorized power after 3 minutes or upon a total of 3 samplings, the emissions of the station will terminate.

(3) The transmitting system must have a device that will detect and adjust the peak level of modulation. If the modulation exceeds more than 10 bursts of 100% negative modulation within a one minute period or any bursts exceeding 125% positive modulation, as measured at the output terminals of the transmitter, the program audio input signal to the transmitter modulators shall be automatically adjusted downward until these limits are not exceeded. For the purposes of this requirement, a sequence of repetitive instances of modulation exceeding the prescribed limits occurring within a single 5 millisecond interval will be considered to be one burst. The station shall comply with the provisions of § 73.1570 with respect to minimum modulation levels.

(c) [Reserved].

(d) If the station is authorized or required to operate at more than one antenna input power or is restricted in its hours of operation, the ATS control equipment must include a time clock to automatically prevent the station from being signed on prior to the authorized time, perform all required mode switching operations, and terminate the transmitter radiations at the required time. The required mode switching time clock must meet the following specifications:

(1) Any failure or interruption in the operation of the clock or clock controlled switching circuits will cause the transmitter radiations to terminate under the ATS mode of operation until the clock is repaired or reset.

(2) The clock will perform all required switching functions at the times prescribed on the station authorization.

(3) Unless the clock is provided with a means to automatically compensate for changes in the operating hours or mode switching times specified on the station authorization for each calendar month, the licensee shall insure that the clock is adjusted as necessary prior to sign-on on the first day of each month or at other times as necessary.

(4) The clock must prohibit the transmitter from operating under the ATS mode during hours or with antenna radiation patterns other than those authorized except for operation during an emergency as provided for in § 73.98.

(5) The accuracy of the clock shall be maintained within an accuracy of plus or minus one minute at all times. The clock accuracy shall be checked as often as necessary, but at least once each calendar month as part of the required transmitting inspections. An entry noting the date and time of the calibration checks and any necessary adjustments shall be made in the station maintenance log. The primary standard of time will be the signals of stations WWV or WWVH of the National Bureau of Standards.

(e) The ATS control equipment shall be designed

to terminate the station transmissions in accordance with § 73.144.

(f) The ATS control equipment shall be designed to provide an alarm signal at an authorized monitoring and alarm point in accordance with § 73.146.

(g) If the station is authorized to use an alternate main or auxiliary transmitter, the ATS control equipment may incorporate circuits to automatically activate such transmitters if they are fully equipped for ATS operation, although such transmitter switching features are not required.

(h) The sampling of modulation levels must be on a continuous basis. All other required sampling of transmitting system functions shall be made at intervals not exceeding one minute.

(i) The ATS equipment shall have facilities to permit testing of the automatic control and alarm devices. The testing may be accomplished without interrupting the station transmission, provided that the test facilities are designed so that they cannot inadvertently or purposefully be used to override the automatic operation of the transmission system.

(j) AM stations may, without further authority from the FCC, use subaudible tones for the purposes of transmitting to ATS monitoring and alarm points essential data on the operating conditions of the broadcast transmitter and associated devices, subject to the following conditions:

(1) The tone must have a frequency no higher than 30 hertz.

(2) The amplitude of modulation of the carrier by the tone must not be higher than necessary to effect reliable and accurate data transmission, and may not, in any case exceed 6%.

(3) The tone may be transmitted only at such times and during intervals as necessary for the ATS functions.

(4) Measures must be used to insure that during period the tone is being transmitted, the total modulation of the carrier conforms with the requirements of § 73.55.

(5) Tone transmission must not significantly degrade the quality of program transmission or produce an audible effect resulting in public annoyance.

#### § 73.144 Fail-safe transmitter control for automatic transmission systems.

(a) The ATS control system for an AM broadcast station must incorporate circuits that will terminate the radiations of the station in event of any of the following conditions within the time interval specified:

(1) Failure of the automatic power adjustment circuits if the automatic power adjustment controls do not correct an over power condition (antenna input power exceeding 105% of the authorized power) for a three minute period.

(2) Failure of the automatic modulation adjustment circuits to prevent excessive modulation levels from continuing uncorrected for a period exceeding three consecutive minutes.

(3) Any failure of the mode switching time clock, if required, for a period exceeding 3 minutes.

(4) Failure of the circuit to the ATS monitoring and alarm point for a period exceeding 3 minutes which prevents the transmitter from being turned off from that point.

(5) Failure in any of the required alarm system functions as required by § 73.146 exceeding 3 consecutive minutes.

(6) Any loss of the required ATS sampling functions for a period exceeding 3 minutes.

(b) If the transmission of the station terminates due to any of the conditions listed in paragraph (a) of this section, operation of the station may resume under manual control of the transmitter, either with an operator holding the proper class of license or permit on duty at the transmitter site or at an authorized remote control point, provided that any out of tolerance condition which may have caused the termination of transmissions is corrected upon resumption of manual operations. A station normally using ATS and temporarily operating under manual control for a period not exceeding 30 continuous days under the provisions of this paragraph, will be exempt from employing a full time radiotelephone first-class operator as required by § 73.93(d).

(c) If termination of the station transmission was caused by any failure of the ATS control or alarm functions, ATS operation of the station shall not be resumed until all necessary repairs or adjustments have been completed and a notation made in the station's maintenance log showing the nature or cause of the ATS malfunction and a certification entered in the log by the station's radiotelephone first-class operator that all required ATS functions are fully restored.

#### § 73.146 Automatic transmission system monitoring and alarm points.

(a) Each AM broadcast station operating an automatic transmission system shall be provided with one or more ATS monitoring and alarm points. A station employee holding at least a restricted radiotelephone operator permit shall be on duty at one such point at all times when the station is in operation. The ATS monitoring and alarm point location may be at the transmitter site, the main studio, an authorized remote control point, or at another authorized location. If the licensee wishes to establish an ATS monitoring and alarm point other than at the station transmitter, main studio, or an authorized remote control point, an informal request is to be submitted to the Commission in Washington, D.C. with a description of the location of the point and stating the basis for its selection. All ATS monitoring and alarm points shall be under the control of, or available to, the licensee at all times. Provisions shall be made so that unauthorized persons cannot activate the transmitting system for such points.

(b) The following ATS controls or alarms functions shall be installed at each ATS monitoring and control point to be utilized.

(1) A means to turn the transmitting apparatus on and off at all times.

(2) An off air monitoring receiver for observing the station's transmitted program signal.

(3) An aural alarm signal as specified in paragraph (c) of this section.

(c) An aural alarm at the ATS control and monitoring point shall activate in event of any of the following conditions:

(1) The transmissions of the station are interrupted for a period exceeding three minutes.

(2) The transmitter output power falls below 90% of the authorized value to be used if not automatically corrected within 3 minutes.

(3) An alarm that would indicate any failure of the tower lighting equipment unless arrangements are made for visual observations of the condition of the tower lighting as required in § 17.47(a) of this chapter.

(d) In addition to the aural alarms specified in paragraph (c) of this section, the licensee may install visual alarms or signals, and alarm circuits, indicating other conditions at the transmitter site provided that there can be recognition between the required alarm signals and those not required.

(e) Whenever a required alarm condition occurs, the alarm signal shall remain continuously activated until the condition causing the alarm is corrected or manual control of the transmitting system is assumed, provided that if a visual alarm is also provided, the aural alarm may be turned off if the visual alarm remains activated. A notation shall be made in the station's operating log of the time and duration of any ATS alarm conditions.

(f) The station employee on duty at the ATS monitoring and alarm point is not restricted to a specific duty position provided that such person can monitor the off-air program signal and alarm signal at all times. If that employee is the only person in attendance at the station, that person must also be able to observe and respond to an EBS alert as required by Subpart G of this part.

(g) The station employees on duty at ATS monitoring and alarm points shall be fully instructed in procedures to take in the event of a malfunction of the transmission system and receipt of an EBS alert.

(h) Station and operator licenses shall be posted at each ATS monitoring and alarm point according to the provisions of § 73.1230.

#### DATA AND MEASUREMENTS

##### § 73.150 Directional antenna systems.

(a) For each station employing a directional antenna, all determinations of service provided and interference caused shall be based on the inverse fields of the standard radiation pattern for that station. (As applied to nighttime operation the term "standard

radiation pattern" shall include the radiation pattern in the horizontal plane, and radiation patterns at angles above this plane, as required by paragraph (b) (1) of this section.) In the event of a discrepancy between the calculated and plotted values of a standard pattern, the calculated values will prevail with respect to protection of domestic stations while the plotted (notified) values will prevail with respect to protection of foreign stations.

**NOTE:** Applications for new stations and for changes (both minor and major) in existing stations must use a standard pattern.

(b) The following data shall be submitted with an application for authority to install a directional antenna:

(1) The standard radiation pattern for the proposed antenna in the horizontal plane, and where pertinent, azimuthal radiation patterns for angles of elevation up to and including 60°, with a separate pattern for each increment of 5°.

(i) The standard radiation pattern shall be based on the theoretical radiation pattern. The theoretical radiation pattern shall be calculated in accordance with the following mathematical expression:

$$E(\phi, \theta)_{th} = \left| k \sum_{i=1}^n F_i f_i(\theta) / S_i \cos \theta \cos(\phi_i - \phi) + \psi_i \right| \quad (\text{Eq. 1})$$

where:

$E(\phi, \theta)_{th}$  represents the theoretical inverse distance fields at one mile for the given azimuth and elevation.

$k$  represents the multiplying constant which determines the basic pattern size. It shall be chosen so that the effective field (RMS) of the theoretical pattern in the horizontal plane shall be no greater than the value computed on the assumption that nominal station power (see § 73.41 (c)) is delivered to the directional array, and that a lumped loss resistance of one ohm exists at the current loop of each element of the array, or at the base of each element of electrical height lower than 0.25 wavelength, and no less than the value required by § 73.189(b) (2) of this part for a station of the class and nominal power for which the pattern is designed.

$n$  represents the number of elements (towers) in the directional array.

$i$  represents the  $i^{th}$  element in the array.

$F_i$  represents the field ratio of the  $i^{th}$  element in the array.

$\theta$  represents the vertical elevation angle measured from the horizontal plane.

$f_i(\theta)$  represents the vertical plane radiation characteristic of the  $i^{th}$  antenna. This value depends on the tower height, as well as whether the tower is top-loaded or sectionalized. The various formulas for computing  $f_i(\theta)$  are given in § 73.160.

$S_i$  represents the electrical spacing of the  $i^{th}$  tower from the reference point.

$\phi_i$  represents the orientation (with respect to true north) of the  $i^{th}$  tower.

$\phi$  represents the azimuth (with respect to true north).

$\psi_i$  represents the electrical phase angle of the current in the  $i^{th}$  tower.

The standard radiation pattern shall be constructed in accordance with the following mathematical expression:

$$E(\phi, \theta)_{std} = 1.05 \sqrt{\{E(\phi, \theta)_{th}\}^2 + Q^2} \quad (\text{Eq. 2})$$

where:

$E(\phi, \theta)_{std}$  represents the inverse fields at one mile which are deemed to be produced by the directional antenna in the horizontal and vertical planes.

$E(\phi, \theta)_{th}$  represents the theoretical inverse distance fields at one mile as computed in accordance with Eq. 1, above.

The method of computing  $Q$  depends on whether the metric system is being used; see § 73.181(f). For all situations prior to January 4, 1982,  $Q$  is the greater of the following quantities:

$$0.025 g(\theta) E_{rms}$$

or

$$6.0 g(\theta) \sqrt{P_{kw}}$$

For all situations on or after January 4, 1982,  $Q$  is the greater of the following quantities:

$$0.025 g(\theta) E_{rms}$$

or

$$10.0 g(\theta) \sqrt{P_{kw}}$$

where:

$g(\theta)$  is the vertical plane distribution factor,  $f(\theta)$ , for the shortest element in the array (see Eq. 2, above; also see Section 73.190, Figure 5). If the shortest element has an electrical height in excess of 0.5 wavelength,  $g(\theta)$  shall be computed as follows:

$$g(\theta) = \frac{\sqrt{\{f(\theta)\}^2 + 0.0625}}{1.030776} \quad (\text{Eq. 3})$$

$E_{rms}$  is the root sum square of the amplitudes of the inverse fields of the elements of the array in the horizontal plane, as used in the expression for  $E(\phi, \theta)_{th}$  (see Eq. 1, above), and is computed as follows:

$$E_{rms} = k \sqrt{\sum_{i=1}^n F_i^2} \quad (\text{Eq. 4})$$

$P_{kw}$  is the nominal station power, expressed in kilowatts; see § 73.14 (c). If the nominal power is less than one kilowatt,  $P_{kw} = 1$ .

(ii) Where the orthogonal addition of the factor  $Q$  to  $E(\phi, \theta)_{th}$  results in a standard pattern whose mini-

imum fields are lower than those found necessary or desirable, these fields may be increased by appropriate adjustment of the parameters of  $E(\phi, \theta)_{1a}$ .

(2) All patterns shall be computed for integral multiples of five degrees, beginning with zero degrees representing true north, and, shall be plotted to the largest scale possible on unglazed letter-size paper (main engraving approximately 7" x 10") using only scale divisions and subdivisions of 1, 2, 2.5, or 5 times 10<sup>th</sup>. The horizontal plane pattern and other azimuthal patterns shall be plotted on polar coordinate paper, with the zero degree point corresponding to true north. Patterns for elevation angles above the horizontal plane may be plotted in polar or rectangular coordinates, with the pattern for each angle of elevation on a separate page. Rectangular plots shall begin and end at true north, with all azimuths labelled in increments of not less than 20 degrees. If a rectangular plot is used, the ordinate showing the scale for radiation may be logarithmic. Minor lobe and null detail occurring between successive patterns for specific angles of elevation need not be submitted. Values of field strength on any pattern less than ten percent of the maximum field strength plotted on that pattern shall be shown on an enlarged scale. Rectangular plots with a logarithmic ordinate need not utilize an expanded scale unless necessary to show clearly the minor lobe and null detail. The direction and distance toward each existing station with which interference may be involved shall be indicated on the horizontal plane pattern, and, as appropriate, on patterns for other angles of elevation, with all directions referred to true north.

(3) The effective (RMS) field strength in the horizontal plane of  $E(\phi, \theta)_{1a}$ ,  $E(\phi, \theta)_{1b}$  and the root sum square (RSS) value of the inverse fields of the array elements at 1 mile, derived from the equation for  $E(\phi, \theta)_{1a}$ . These values shall be tabulated on the page on which the horizontal plane pattern is plotted, which shall be specifically labeled as the Standard Horizontal Plane Pattern.

(4) Physical description of the array, showing:

- (i) Number of elements.
- (ii) Type of each element (i.e., guyed or self-supporting, uniform cross section or tapered (specifying base dimensions), grounded or insulated, etc.).
- (iii) Details of top loading, or sectionalizing, if any.

(iv) Height of radiating portion of each element in feet (height above base insulator, or base, if grounded).

(v) Overall height of each element above ground.

(vi) Sketch of antenna site, indicating its dimensions, the location of the antenna elements thereon, their spacing from each other, and their orientation with respect to each other and to true north, the number and length of the radials in the ground system about each element, the dimensions of ground screens, if any, and bonding between towers and between radial systems.

(5) Electrical description of the array, showing:

(i) Relative amplitudes of the fields of the array elements.

(ii) Relative time phasing of the fields of the array elements in degrees leading [+ ] or lagging [- ].

(iii) Space phasing between elements in degrees.

(iv) All assumptions made and the basis therefor, particularly with respect to the electrical height of the elements, current distribution along elements, efficiency of each element, and ground conductivity.

(v) Formulas used for computing  $E(\phi, \theta)_{1a}$  and  $E(\phi, \theta)_{1b}$  together with sample computations.

(vi) Complete tabulation of final computed data used in plotting patterns, including data for the determination of the RMS value of the pattern, and the RSS field of the array.

(6) The values used in specifying the parameters which describe the array must be specified to no greater precision than can be achieved with available monitoring equipment. Use of greater precision raises a rebuttable presumption of instability of the array. Following are acceptable values of precision; greater precision may be used only upon showing that the monitoring equipment to be installed gives accurate readings with the specified precision.

(i) Field Ratio: 3 significant figures.

(ii) Phasing: to the nearest 0.1 degree.

(iii) Orientation (with respect to a common point in the array, or with respect to another tower): to the nearest 0.1 degree.

(iv) Spacing (with respect to a common point in the array, or with respect to another tower): to the nearest 0.1 degree.

(v) Electrical Height (for all parameters listed in Section 73.160) : to the nearest 0.1 degree.

(vi) Theoretical RMS (to determine pattern size) : 4 significant figures.

(vii) Additional requirements relating to modified standard patterns appear in § 73.152(b) (5).

(7) Any additional information required by the application form

(c) Sample calculations for the theoretical and standard radiation follow. Assume a five kilowatt (nominal power) station with a theoretical RMS of 685 mV/m at one kilometer. Assume that it is an in-line array consisting of three towers. Assume the following parameters for the towers :

Tower	Field ratio	Relative phasing	Relative spacing	Relative orientation
1.....	1.0	-128.5	0.0	0.0
2.....	1.89	0.0	110.0	285.0
3.....	1.0	128.5	220.0	285.0

Assume that tower 1 is a typical tower with an electrical height of 120 degrees. Assume that tower 2 is top-loaded in accordance with the method described in § 73.160(b) (2) where A is 120 electrical degrees and B is 20 electrical degrees. Assume that tower 3 is sectionalized in accordance with the method described in § 73.160(b) (3) where A is 120 electrical degrees, B is 20 electrical degrees, C is 220 electrical degrees, and D is 15 electrical degrees.

The multiplying constant will be 323.6.

Following is a tabulation of part of the theoretical pattern :

Azimuth	0	30	60	Vertical angle
0	15.98	62.49	68.20	
105	1225.30	819.79	234.54	
105	0.43	18.46	34.56	
247	82.62	51.52	26.38	

If we further assume that the station has a standard pattern, we find that Q, for  $\theta=0$ , is 22.36.

Following is a tabulation of part of the standard pattern :

Azimuth	0	30	60	Vertical angle
0	28.86	68.05	72.06	
105	1286.78	860.97	246.41	
235	23.48	26.50	37.18	
247	89.87	57.03	28.87	

The RMS of the standard pattern in the horizontal plane is 719.63 mV/m at one kilometer.

(7) Any additional information required by the application form.

【§ 73.150(a) note, (b) (1) (i) revised, (b) (6) reded. as (b) (7), new (b) (6) and (c) added; Eff. 3-17-81; III (80)-1】

§ 73.151 Field strength measurements to establish performance of directional antennas.

(a) In addition to the information required by the license application form, the following showing must be submitted to establish for each mode of directional operation, that the effective measured field strength (RMS) at 1 mile is not less than 85 percent of the effective field strength specified for the standard radiation pattern for that mode of directional operation, or less than that specified in § 73.189(b) for the class of station involved, whichever is the higher value, and that the measured field strength at 1 mile in any direction does not exceed the field shown in that direction on the standard radiation pattern for that mode of directional operation :

(1) A tabulation of inverse field strengths in the horizontal plane at 1 mile, as determined from field strength measurements taken and analyzed in accordance with § 73.186, and a statement of the effective field strength (RMS), based on these measurements. Measurements shall be made in at least the following directions :

(i) Those specified in the instrument of authorization.

(ii) In major lobes. Generally at least three radials are necessary to establish a major lobe ; however, additional radials may be required.

(iii) Along sufficient number of other radials to establish the effective field. In the case of a relatively simple directional antenna pattern, approximately five radials in addition to those in subdivisions (i) and (ii) of this subparagraph are sufficient. However, when more complicated patterns are involved, that is, patterns having several or sharp lobes or nulls, measurements shall be taken along as many radials as may be necessary, to definitely establish the pattern(s).

(2) A tabulation of :

(1) The phase difference of the current in each



other element with respect to the reference element, and whether the current leads (+) or lags (−) the current in the reference element, as indicated by the station's antenna monitor.

(ii) The ratio of the amplitude of the current in each other element to the current in the reference element, as indicated on the station's antenna monitor.

(iii) The value of the radio frequency current at the base of each element, and the ratio of the current in each other element to the base current in the reference element. If there are substantial differences between the ratios established in subdivision (ii) of this subparagraph and the ratios computed in this subdivision (iii) and/or if there are substantial differences between the parameters established in subdivisions (i) and (ii) of this subparagraph and this subdivision (iii), and those used in the design of the standard radiation pattern, a full explanation of the reasons for these differences shall be given.

(3) The 25 and 5 mV/m field strength contours and the nighttime interference-free contour, when the pattern is for nighttime operation, as well as any other contours specified by the instrument of authorization, plotted on a map which has the largest practical scale. These contours need not be shown for distances greater than 20 miles from the antenna except that the field strength contours on the far side of the business and residential areas of the city in which the main studio is located shall be shown. When the station is limited by interference within the 5 mV/m contour the latter contour need not be shown. In the event the 5 mV/m contour includes and extends beyond the city and beyond 20 miles, the highest signal intensity contour that entirely includes the city may be plotted in lieu of the 5 mV/m contour; in the event that the 5 mV/m contour does not include the city, the contour of highest signal strength encompassing the city shall be plotted in addition to the 5 mV/m contour.

(4) The actual field strength measured at each monitoring point established in the various directions for which a limiting field was specified in the instrument of authorization together with accurate and detailed description of each monitoring point together with ordinary snapshots, clear and sharp, taken with the field strength meter in its measuring position and with the camera so located that its field of view takes in as many pertinent landmarks as possible. In addition, the directions for proceeding to each monitoring point together with a rough sketch or map upon which has been indicated the most accessible approaches to the monitoring points should be submitted.

#### § 73.152 Modification of directional antenna data.

(a) If, after construction and final adjustment of a directional antenna, a measured inverse distance field

in any direction exceeds the field shown on the standard radiation pattern for the pertinent mode of directional operation, an application shall be filed, specifying a modified standard radiation pattern and/or such changes as may be required in operating parameters so that all measured effective fields will be contained within the modified standard radiation pattern.

(b) Normally, a modified standard pattern is not acceptable at the initial construction permit stage, before a proof-of-performance has been completed. However, in certain cases, where it can be shown that modification is necessary, a modified standard pattern will be acceptable at the initial construction permit stage. Following is a non-inclusive list of items to be considered in determining whether a modification is acceptable at the initial construction permit stage:

(1) When the proposed pattern is essentially the same as an existing pattern at the same antenna site. (e.g., A DA-D station proposing to become a DA-1 station.)

(2) Excessive reradiating structures, which should be shown on a plat of the antenna site and surrounding area.

(3) Other environmental factors; they should be fully described.

(4) Judgment and experience of the engineer preparing the engineering portion of the application. This must be supported with a full discussion of the pertinent factors.

(c) The following general principles shall govern the situations in paragraphs (a) and (b) in this section:

(1) Where a measured field in any direction will exceed the authorized standard pattern, the license application may specify the level at which the input power to the antenna shall be limited to maintain the measured field at a value not in excess of that shown on the standard pattern, and shall specify the common point current corresponding to this power level. This value of common point current will be specified on the license for that station.

(2) Where any excessive measured field does not result in objectionable interference to another station, a modification of construction permit application may be submitted with a modified standard pattern encompassing all measured fields. The modified standard pattern shall supersede the previously submitted standard radiation pattern for that station in the pertinent mode of directional operation. Following are the possible methods of creating a modified standard pattern:

(i) The modified pattern may be computed by making the entire pattern larger than the original pattern (i.e., have a higher RMS value) if the measured fields systematically exceed the confines of the original pattern. The larger pattern shall be computed by using a

larger multiplying constant, k, in the theoretical pattern equation (Eq. 1) in § 73.150(b) (1).

(ii) Where the measured field exceeds the pattern in discrete directions, but objectionable interference does not result, the pattern may be expanded over sectors including these directions. When this "augmentation" is desired, it shall be achieved by application of the following equation:

$$E(\phi, \theta)_{aug} = \sqrt{\{E(\phi, \theta)_{std}\}^2 + A\{g(\theta) \cos(180 \frac{D_A}{S})\}^2}$$

where:

$E(\phi, \theta)_{std}$  is the standard pattern field at some particular azimuth and elevation angle, before augmentation, computed pursuant to Eq. 2, § 73.150(b) (1) (i).

$E(\phi, \theta)_{aug}$  is the field in the direction specified above, after augmentation.

$A = E(\phi', O)_{aug}^2 - (\phi', O)_{std}^2$  in which  $\phi'$  is the central azimuth of augmentation.

$E(\phi', O)_{aug}$  and  $E(\phi', O)_{std}$  are the fields in the horizontal plane at the central azimuth of augmentation.

NOTE: "A" must be positive, except during the process of converting non-standard patterns to standard patterns pursuant to the *Report and Order in Docket No. 21473*, and in making minor changes to stations with patterns developed during the conversion. However, even when "A" is negative, "A" cannot be so negative that  $E(\theta)_{aug}$  is less than  $E(\phi, \theta)_{th}$  at any azimuth or vertical elevation angle.

$g(\theta)$  is defined in § 73.150(b) (1) (i).

S is the angular range, or "span", over which augmentation is applied. The span is centered on the central azimuth of augmentation. At the limits of the span, the augmented pattern merges into the unaugmented pattern. Spans may overlap.

$D_A$  is the absolute horizontal angle between the azimuth at which the augmented pattern value is being computed and the central azimuth of augmentation. ( $D_A$  cannot exceed  $\frac{1}{2} S$ .)

In the case where there are spans which overlap, the above formula shall be applied repeatedly, once for each augmentation, in ascending order of central azimuth of augmentation, beginning with zero degrees representing true North. Note that, when spans overlap, there will be, in effect, an augmentation of an augmentation. And, if the span of an earlier augmentation overlaps the central azimuth of a later augmentation, the value of "A" for the later augmentation will be different than the value of "A" without the overlap of the earlier span.

(iii) A combination of (1) and (ii), of this section, with (i) being applied before (ii) is applied.

(3) A Modified Standard Pattern shall be specifically labeled as such, and shall be plotted in accordance with the requirements of subparagraph (2) of paragraph (b) of § 73.150. The effective (RMS) field strength in the horizontal plane of  $E(\phi, \theta)_{std}$ ,  $E(\phi, \theta)_{th}$ , and the root sum square (RSS) value of the inverse fields of the array elements (derived from the equation for  $E(\phi, \theta)_{th}$ ), shall be tabulated on the page on which the horizontal plane pattern is plotted. Where sector augmentation has been employed in designing the modified pattern, the direction of maximum augmentation (i.e., the central azimuth of augmentation) shall be indicated on the horizontal plane pattern for each augmented sector, and the limits of each sector shall also be shown. Field values within an augmented sector, computed prior to augmentation, shall be depicted by a broken line.

(4) There shall be submitted, for each modified standard pattern, complete tabulations of final computed data used in plotting the pattern. In addition, for each augmented sector, the central azimuth of augmentation, span, and radiation at the central azimuth of augmentation ( $E\phi\theta)_{aug}$  shall be tabulated.

(5) The parameters used in computing the modified standard pattern shall be specified with realistic precision. Following is a list of the maximum acceptable precision:

(i) Central Azimuth of Augmentation: to the nearest 0.1 degree.

(ii) Span: to the nearest 0.1 degree.

(iii) Radiation at Central Azimuth of Augmentation: 4 significant figures.

(d) Sample calculations for a modified standard pattern follow. First, assume the existing standard pattern in § 73.150(c). Then, assume the following augmentation parameters:

Augmentation number	Central azimuth	Span	Radiation at central azimuth
1.....	110	40	1,300
2.....	240	50	52
3.....	250	10	130

Following is a tabulation of part of the modified standard pattern:

Azimuth	0	30	60	Vertical angle
0.....	28.86	68.05	72.06	.....
105.....	1,299.42	872.14	254.21	.....
235.....	39.00	35.74	38.71	.....
247.....	100.47	66.69	32.78	.....

【§ 73.152 revised eff. 3-17-81; III (80)-1】



§ 73.153 Field strength measurements in support of applications or evidence at hearings.

In the determination of interference, groundwave field strength measurements will take precedence over theoretical values, provided such measurements are properly taken and presented. When measurements of groundwave signal strength are presented, they shall be sufficiently complete in accordance with § 73.186 to determine the field strength at 1 mile in the pertinent directions for that station. The antenna resistance measurements required by § 73.186 need not be taken or submitted.

§ 73.154 Directional antenna partial and skeleton proof of performance field strength measurements.

(a) The partial proof of performance shall consist of at least 10 field strength measurements on each of the radials established in the latest complete proof of performance of the directional antenna system. These measurements shall be made at locations, all within 2 to 10 miles (3 to 16 kilometers) from the antenna, which were utilized in such proof, and include on each radial, the point, if any, designated as a monitoring point in the station authorization. Measurements shall be analyzed in the manner prescribed in § 73.186 of the rules.

(b) The skeleton proof of performance shall consist of field strength measurements, at least three on each of the radials established in the latest complete proof of performance of the directional antenna system, made at measurement locations utilized in such proof, and include, on each radial, the point, if any, designated as a monitoring point in the station authorization.

§ 73.157 Special antenna test authorizations.

(a) A special antenna test authorization may be issued to the licensee of a station, using a directional antenna during nighttime hours, to operate with the nighttime facilities during the daytime when conducting monitoring point field strength measurements and antenna proof of performance measurements. To obtain a special antenna test authorization, an informal letter request, signed by the licensee, shall be submitted to the FCC in Washington, D.C.

(b) Special antenna equipment test authorizations will be granted in accordance with the following conditions:

$$f(\theta) = \frac{\cos B \cos (A \sin \theta) - \sin \theta \sin B \sin (A \sin \theta) - \cos (A+B)}{\cos \theta (\cos B - \cos (A+B))}$$

(1) No harmful interference will be caused to any other station due to operation with a nighttime directional pattern during daytime hours.

(2) The authorizations may be modified or cancelled at any time by the Commission.

(3) Operation with nighttime power and directional radiation pattern shall be only for the purposes of making monitoring point field strength measurements or antenna proof of performance measurements and shall be restricted to the minimum time possible to accomplish the measurements.

(c) Special equipment test authorizations are to be posted with the station license in accordance with § 73.92.

§ 73.160 Vertical plane radiation characteristics,  $f(\theta)$ .

(a) The vertical plane radiation characteristics show the relative field being radiated at a given vertical angle, with respect to the horizontal plane. The vertical angle, represented as  $\theta$ , is 0 degrees in the horizontal plane, and 90 degrees when perpendicular to the horizontal plane. The vertical plane radiation characteristic is referred to as  $f(\theta)$ . The generic formula for  $f(\theta)$  is:

$$f(\theta) = E(\theta)/E(O)$$

where:

$E(\theta)$  is the radiation from the tower at angle  $\theta$ .

$E(O)$  is the radiation from the tower in the horizontal plane.

(b) Listed below are formulas for  $f(\theta)$  for several common towers.

(1) For a typical tower, which is not top-loaded or sectionalized, the following formula shall be used:

$$f(\theta) = \frac{\cos (G \sin \theta) - \cos G}{(1 - \cos G) \cos \theta}$$

where:

$G$  is the electrical height of the tower, not including the base insulator and pier. (In the case of a folded unipole tower, the entire radiating structure's electrical height is used.)

(2) For a top-loaded tower, the following formula shall be used:

where:

- A is the physical height of the tower, in electrical degrees, and
- B is the difference, in electrical degrees, between the apparent electrical height (G, based on current distribution) and the actual physical height.

$$f(\theta) = \frac{\sin B [\cos D \cos (C \sin \theta) - \sin \theta \sin D \sin (C \sin \theta) - \cos \Delta \cos (A \sin \theta)] + \{\sin \Delta [\cos B \cos (A \sin \theta) - \cos G] + \cos \theta [\sin \Delta (\cos B - \cos C) + \sin B (\cos D - \cos \Delta)]\}}{\cos \theta [\sin \Delta (\cos B - \cos C) + \sin B (\cos D - \cos \Delta)]}$$

where:

- A is the physical height, in electrical degrees, of the lower section of the tower.
- B is the difference between the apparent electrical height (based on current distribution) of the lower section of the tower and the physical height of the lower section of the tower.
- C is the physical height of the entire tower, in electrical degrees.
- D is the difference between the apparent electrical height of the tower (based on current distribution of the upper section) and the physical height of the entire tower, D will be zero if the sectionalized tower is not top-loaded.
- G is the sum of A and B; A + B.
- H is the sum of C and D; C + D.
- Δ is the difference between H and A; H - A.

See Figure 2 of this section.

(c) One of the above  $f(\theta)$  formulas *must* be used in computing radiation in the vertical plane, unless the applicant submits a special formula for a particular type of antenna. If a special formula is submitted, it must be accompanied by a complete derivation and sample calculations. Submission of values for  $f(\theta)$  only in a tabular or graphical format (i.e., without a formula) is not acceptable.

(d) Following are sample calculations. (The number of significant figures shown here should *not* be interpreted as a limitation on the number of significant figures used in actual calculations.)

- (1) For a typical tower, as described in subsection (b) (1), assume that G=120 electrical degrees:

$\theta$	$f(\theta)$
0.....	1.0000
30.....	0.7698
60.....	0.3458

- (2) For a top-loaded tower, as described in subsection (b) (2), assume A=120 electrical degrees, B=

G is the apparent electrical height: the sum of A and B; A + B.

See Figure 1 of this section.

- (3) For a sectionalized tower, the following formula shall be used:

20 electrical degrees, and G=140 electrical degrees, (120+20):

$\theta$	$f(\theta)$
0.....	1.0000
30.....	0.7364
60.....	0.2960

- (3) For a sectionalized tower, as described in subsection (b) (3), assume A=120 electrical degrees, B=20 electrical degrees, C=220 electrical degrees, D=15 electrical degrees, G=140 electrical degrees (120+20), H=235 electrical degrees (225 +15), and Δ=115 electrical degrees (235-120):

$\theta$	$f(\theta)$
0.....	1.0000
30.....	0.5930
60.....	0.1423

【§ 73.160 added *eff.* 3-17-81; III (80)-1】

AM TECHNICAL STANDARDS

§ 73.181 Introduction.

(a) There are presented in the following sections of this subpart the Technical Standards giving interpretations and further considerations concerning the technical rules and regulations governing standard broadcast stations. These standards have been approved by the Commission and reflect the opinion of the Commission in all matters involved. See also § 73.28.

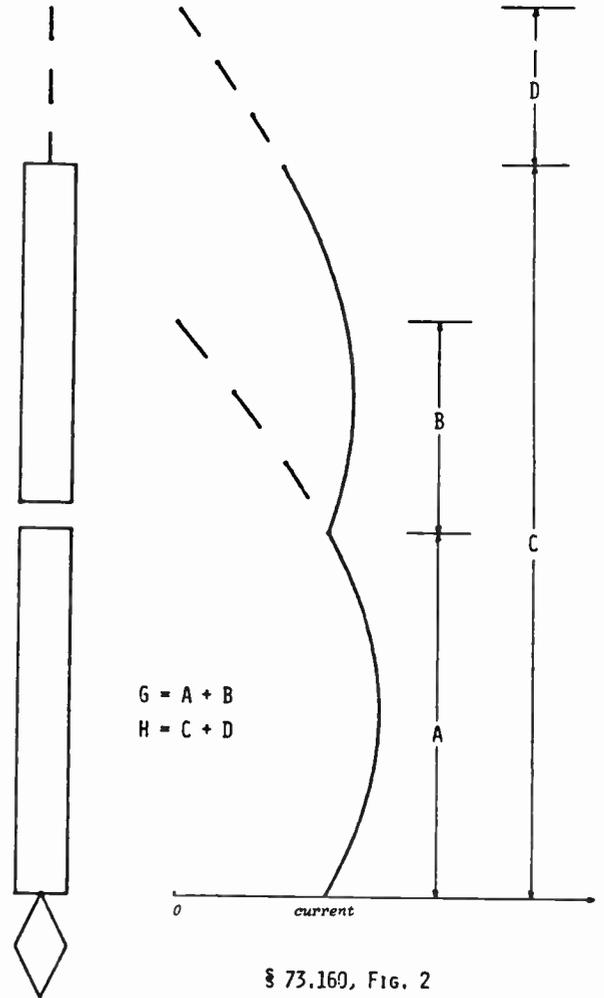
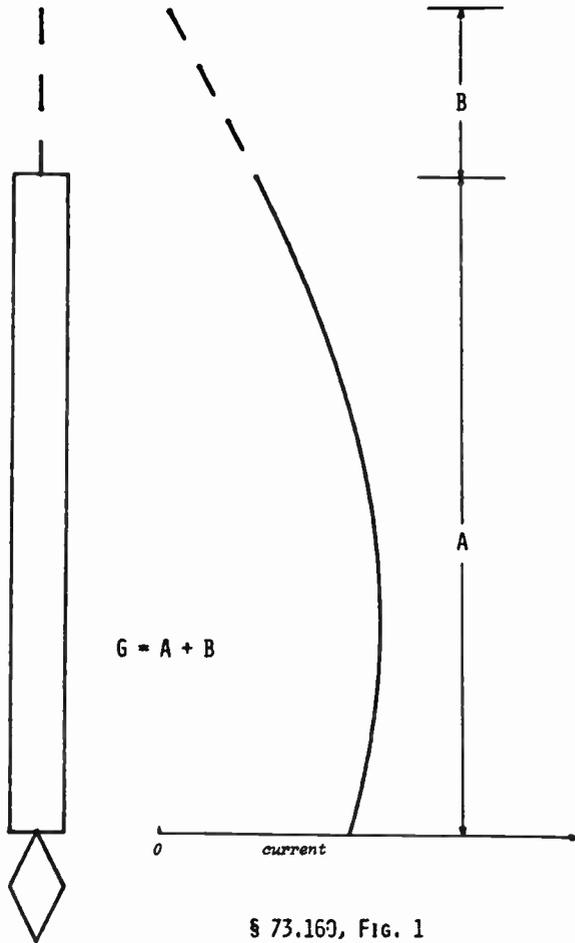
(b) The Technical Standards set forth in the following sections are those deemed necessary for the construction and operation of AM broadcast stations to meet the requirements of technical regulations set forth above and for operation in the public interest along technical lines not specifically enunciated above. These standards are based on the best engineering

data available from evidence supplied in formal and informal hearings and extensive surveys conducted in the field by the Commission's personnel. Numerous informal conferences have been held with radio engineers, manufacturers of radio equipment and others for the guidance of the Commission in the formulation of these standards.

(c) These standards supersede any previous announcements or policies which may have been enunciated by the Commission on engineering matters concerning AM broadcast stations.

(d) While these standards provide for flexibility and set forth the conditions under which they are applicable, it is not expected that material deviation therefrom as to fundamental principles will be recognized unless full information is submitted as to the reasonableness of such departure and the need therefor.

(e) These standards will necessarily change as progress is made in the art, and accordingly it will be necessary to make revisions from time to time. The Commission will accumulate and analyze engi-



neering data available as to the progress of the art so that its standards may be kept current with the developments.

(f) The Commission is in the process of converting its standards to the metric system. This process will be gradual, with some of our standards and other requirements in the metric system while other of our standards and requirements may remain non-metric. Therefore, parties involved with AM broadcast stations and applications therefore should take extra care to avoid problems resulting from the mixing of the two systems.

(1) Parties submitting directional antenna patterns pursuant to §§ 73.150 and 73.152 (standard patterns and modified standard patterns) must submit patterns which are tabulated and plotted using units of mV/m at one mile prior to January 4, 1982. Beginning on January 4, 1982, such patterns must be tabulated and plotted using units of millivolts per meter at one kilometer. Applications which are amended should use the units in effect as of the day of submission of the amendment. Applications which are on file prior to January 4, 1982, need not be amended solely for the purpose of conversion to the metric units. Applications which are submitted using the wrong units will be returned unless they are promptly amended to use the correct units.

(2) The Rules and the application forms (Forms 301, 302, 340, and 341) will be amended periodically as other changes to the metric system are made. Interested parties should check carefully to insure that the correct units are being used.

【§ 73.181(f) added eff. 3-17-81; III(80)-1】

#### § 73.182 Engineering standards of allocation.

(a) Sections 73.21 to 73.34, inclusive, govern allocation of facilities in the AM broadcast band of 535 to 1605 kHz. Section 73.21 establishes three classes of channels in this band, namely, clear channels for the use of high-powered stations, regional channels for the use of medium-powered stations, and local channels for the use of low-powered stations. The classes and power

of AM broadcast stations which will be assigned to the various channels are set forth in § 73.21. The classification of the AM broadcast stations are as follows:

(1) Class I stations are dominant stations operating on clear channels with powers of not less than 10 or more than 50 kW. These stations are designed to render primary and secondary service over an extended area and at relatively long distances, hence have their primary service areas free from objectionable interference from other stations on the same and adjacent channels and secondary service areas free from objectionable interference from stations on the same channels. (The secondary service area of a Class I station is not protected from adjacent channel interference. However, if it is desired to make a determination of the area in which adjacent channel groundwave interference (10 kHz removed) to skywave service exists, it may be considered as the area where the ratio of the desired 50% skywave of the Class I station to the undesired groundwave of a station 10 kHz removed is 1 to 4.) From an engineering point of view, Class I stations may be divided into two groups and, hereafter, for the purpose of convenience, the two groups of Class I stations will be termed Class I-A or I-B in accordance with the assignment to channels allocated by § 73.25 (a) or (b).

(i) The Class I stations in Group I-A are those assigned to the channels allocated by Section 73.25(a). The power of these stations shall be 50 kW. The Class I stations in this group are afforded protection as follows:

(A) *Daytime*. To the 0.1 mV/m groundwave contour from stations on the same channel, and to the 0.5 mV/m groundwave contour from stations on adjacent channels.

(B) *Nighttime*. To the 0.5 mV/m 50% skywave contour from stations on the same channel, and to the 0.5 mV/m groundwave contour from stations on adjacent channels.

(ii) The Class I stations in group I-B are those assigned to the channels allocated by § 73.25(b), on which duplicate operation is permitted, that is, other

Class I or Class II stations operating unlimited time may be assigned to such channels. During nighttime hours of operation a Class I station of this group is protected to the 500 uV/m 50 percent skywave contour and during daytime hours of operation to the 100 uV/m groundwave contour from stations on the same channel. Protection is given to the 500 uV/m groundwave contour from stations on adjacent channels for both day and nighttime operation. The operating powers of Class I stations on these frequencies shall be not less than 10 kW nor more than 50 kW.

(2) Class II stations are secondary to stations which operate on clear channels with powers not less than 250 watts nor more than 50 kW, except that Class II-A stations shall not operate nighttime with less than 10 kW, and Class II-B stations coming within Section 73.21(a)(2)(ii)(C) shall not operate with nighttime power exceeding 1 kW. Class II stations are required to use directional antennas or other means to avoid causing interference within the normally protected service areas of Class I stations or other Class II stations. (For special rules concerning Class II-A stations, see Section 73.22.) These stations normally render primary service only, the area of which depends on the geographical location, power, and frequency. This may be relatively large but is limited by a subject to such interference as may be received from Class I stations. However, it is recommended that Class II stations be so located that the interference received from other stations will not limit the service area to greater than 2.5 mV/m groundwave contour nighttime and 0.5 mV/m groundwave contour daytime, which are the values for the mutual protection of this class of stations with other stations of the same class. There are three exceptions:

(i) Class II-A stations are normally protected at night to the limit imposed by the co-channel Class I-A station;

(ii) Class II-B stations coming within Section 73.21(a)(2)(ii)(D) are normally protected at night to the limit imposed by the co-channel Class I-A, sta-

tion or the higher limit, if any, imposed by previously authorized facilities of other stations; and

(iii) Class II-B stations coming within Section 73.21(a)(2)(ii)(C) are normally protected at nighttime to their 10 mV/m groundwave contour, or the higher limit, if any, imposed by previously authorized facilities of other stations.

(3) Class III stations operate on regional channels and normally render primary service to the larger cities and the rural area contiguous thereto, and are subdivided into two classes:

(1) Class III-A stations, which operate with powers not less than 1 kW or more than 5 kW, are normally protected to the 2500 uV/m groundwave contour nighttime and the 500 uV/m groundwave contour daytime.

(ii) Class III-B stations, which operate with a nighttime nominal power of 500 watts and a daytime nominal power of no less than 500 watts and no greater than 5 kilowatts, and are normally protected to the 4000 uV/m contour nighttime and the 500 uV/m contour daytime.

NOTE: In NARBA and the U.S./Mexican Agreement, no distinction is made between Class III-A and Class III-B stations.

(4) Class IV stations operate on local channels, normally rendering primary service only to a city or town and the suburban or rural areas contiguous thereto, with powers not less than 250 watts, nor more than 250 watts nighttime and 1 kilowatt daytime (for restrictions on daytime power of local stations located near the Mexican border or in an area within the State of Florida, see § 73.21(c)). Such stations are normally protected to the 0.5 mV/m contour daytime. On local channels the separation required for the daytime protection shall also determine the nighttime separation. Where directional antennas are employed daytime by Class IV stations operating with more than 250 watts power, the separations required shall in no case be less than those necessary to afford protection, assuming nondirectional operation with 250 watts. In no case will 250 watts nighttime operation be authorized to a station unable to operate nondirec-



tionally at 250 watts in the daytime. The actual nighttime limitation will be calculated.

**NOTE:** The following approximate method may be used. It is based on the assumption of 0.25 wavelength antenna height and 88 mV/m at one mile effective field for 250 watts power, using the 10% skywave field strength curve of Figure 2 of § 73.190. Zones defined by circles of various radii specified below are drawn about the desired station and the interfering 10% skywave signal from each station in a given zone is considered to be the value tabulated below. The effective interfering 10% skywave signal is taken to be the RSS value of all signals originating within these zones. (Stations beyond 500 miles are not considered.)

Zone	Inner radius	Outer radius	10 percent skywave signal (mV/m)
A		60	0.10
B	60	80	.12
C	80	100	.14
D	100	250	.16
E	250	350	.14
F	350	450	.12
G	450	500	.10

Where the power of the interfering station is not 250 watts, the 10% skywave signal should be adjusted by the square root of the ratio of the power to 250 watts.

(b) The class of any station is determined by the channel assignment, the power, and the field strength contour to which it renders service free of interference from other stations as determined by interference from other stations as determined by these standards. No station will be permitted to change to a class normally protected to a contour of less strength than the contour to which the station actually renders interference-free service. Any station of a class normally protected to a contour of less intensity than that to which the station actually renders interference-free service, will be automatically reclassified according to the class normally protected, the minimum consistent with its power and channel assignment. Likewise, any station to which the interference is reduced so that service is rendered to a contour normally protected for a higher class will be automatically changed to that class if consistent with its power and channel assignment.

(c) [Reserved]

(d) When a station is already limited by interference from other stations to a contour of higher value than that normally protected for its class, this contour shall be the established standard for such station with respect to interference from all other stations.

(e) The several classes of AM broadcast stations have in general three service areas, i.e., primary, secondary, and intermittent service areas. (See § 73.11 for the definitions of primary, secondary, and intermittent service areas.) Class I stations render service to all three areas. Class II stations render service to a primary area but the secondary and intermittent service areas may be materially limited or destroyed due to interference from other stations, depending on the station assignments involved. Class III and IV stations usually have only primary service areas, as interference from other stations generally prevents any secondary service and may limit the intermittent service area. However, complete intermittent service may be obtained in many cases depending on the station assignments involved.

(f) The signals necessary to render primary service to different types of service areas as follows:

Area	Field strength groundwave (mV/m)
City business or factory areas	10 to 50
City residential areas	2 to 10
Rural—all areas during winter or northern areas during summer	0.1 to 0.5
Rural—southern areas during summer	0.25 to 1.0

See § 73.184 for curves showing distance to various groundwave field strength contours for different frequency and ground conductivities, and also see § 73.183, "Groundwave signals."

(1) The above values are based on an absence of objectionable fading, either in changing strength or selective fading, the usual noise level in the area, and an absence of limiting interference from other A broadcast stations. The values apply both day and night but generally fading or interference from other stations limits the primary service at night in all rural areas to higher values of field strength than the values given.

(2) The FCC will authorize a directional antenna for a Class IV station for daytime operation only with power in excess of 250 watts. In computing the degrees of protection which such antenna will afford, the radiation produced by this antenna will be assumed to be no less, in any direction than that which would result from non-directional operation using a single element of the directional array, with 250 watts.

(3) Standards are not established for interference from atmospheric or manmade electric noise. Objectionable interference from any source, except other AM broadcast signals, may be determined by comparing the actual noise interference reproduced during

reception of a desired signals to the degree of interference that would be caused by another AM signal within 20 Hz of the desired signal having a carrier ratio of 20 to 1 with both signals modulated 100% on peaks of usual programs.

(g) In determining the population of the primary service area, it may be considered that the following signals are satisfactory to overcome man-made noise in towns of the population given.

Population :	<i>Field intensity groundwave</i>
Up to 2,500-----	0.5 mV/m
2,500 to 10,000-----	2.0 mV/m
10,000 and up-----	Values given
	in paragraph (f) of this Section

These values are subject to wide variations in individual areas and especial attention must be given to interference from other stations. The values are not considered satisfactory in any case for service to the city in which the main studio of the station is located. The values in paragraph (f) of this section shall apply except as individual consideration may determine.

(h) All classes of AM broadcast stations have primary service areas subject to limitation by fading and noise, and interference from other stations to the contours set out for each class of station.

(i) Secondary service is delivered in the areas where the skywave for 50 percent or more of the time has a field strength of 0.5 mV/m or greater. It is not considered that satisfactory secondary service can be rendered to cities unless the skywave approaches in value the groundwave required for primary service. The secondary service is necessarily subject to some interference and extensive fading whereas the primary service area of a station is subject to no objectionable interference or fading. Class I stations only are assigned on the basis of rendering secondary service.

**NOTE:** Standards have not been established for objectionable fading as such standards would necessarily depend on the receiver characteristics which have been changed considerably in this regard during the last several years. Selective fading causing audio distortion and the signal fading below the noise level are the objectionable characteristics of fading on modern design receivers. The AVC circuits in the better designed modern receivers in general maintain the audio output sufficiently constant to be satisfactory during most fading.

(j) The intermittent service is rendered by the groundwave and begins at the outer boundary of the primary service area and extends to the value of signal where it may be considered as having no further service value. This may be down to only a few microvolts in certain areas and up to several

millivolts in other areas of high noise level, interference from other stations, or objectionable fading at night. The intermittent service area may vary widely from day to night and generally varies from time to time as the name implies. Only Class I stations are assigned for protection from interference from other stations into the intermittent service area.

(k) Section 73.23 provides that the several classes of broadcast stations may be licensed to operate unlimited time, limited time, daytime, sharing time, and specified hours, with full explanation given in the section (see § 73.38 for restriction on limited time authorizations).

(l) Section 73.24 sets out the general requirements for obtaining an increase in facilities of a licensed station and for a new station. Sections 73.24(b) and 73.37 concern the matter of interference that may be caused by a new assignment or increase in facilities of an existing assignment.

(m) [Reserved]

(n) [Reserved]

(o) Objectionable nighttime interference from another broadcast station is the degree of interference produced when, at a specified field strength contour with respect to the desired station, the field strength of an undesired station (or the root-sum-square value of field strengths of two or more stations on the same frequency) exceeds for 10 percent or more of the time the values set forth in these standards.

(1) With respect to the root-sum-square values of interfering field strength referred to in this section, except in the case of Class IV stations on local channels, calculation is accomplished by considering the signals in order of decreasing magnitude, adding the squares of the values and extracting the square root of the sum, excluding those signals which are less than 50% of the RSS value of the higher signals already included.

(2) The RSS value will not be considered to be increased when a new interfering signal is added which is less than 50% of the RSS value of the interference from existing stations, and which at the same time is not greater than the smallest signal included in the RSS value of interference from existing stations.

(3) It is recognized that application of the above "50% exclusion" method of calculating the RSS interference may result in some cases in anomalies where in the addition of a new interfering signal or the increase in value of an existing interfering signal will cause the exclusion of a previously included signal and may cause a decrease in the calculated RSS

value of interference. In order to provide the Commission with more realistic information regarding gains and losses in service (as a basis for determination of the relative merits of a proposed operation) the following alternate method of calculating the proposed RSS values of interference will be employed wherever applicable.

(4) In the cases where it is proposed to add a new interfering signal which is not less than 50% of the RSS value of interference from existing stations or which is greater than the smallest signal already included to obtain this RSS value, the RSS limitation after addition of the new signal shall be calculated without excluding any signal previously included. Similarly, in cases where it is proposed to increase the value of one of the existing interfering signals which has been included in the RSS value, the RSS limitation after the increase shall be calculated without excluding the interference from any source previously included.

(5) If the new or increased signal proposed in such cases is ultimately authorized, the RSS values of interference to other stations affected will thereafter be calculated by the "50% exclusion" method without regard to this alternate method of calculation.

(6) Examples of RSS interference calculations:

(i) Existing interferences:

- Station No. 1—1.0 mV/m.
- Station No. 2—0.60 mV/m.
- Station No. 3—0.59 mV/m.
- Station No. 4—0.58 mV/m.

The RSS value from Nos. 1, 2 and 3 is 1.31 mV/m; therefore interference from No. 4 is excluded for it is less than 50% of 1.31 mV/m.

(ii) Station A receives interference from:

- Station No. 1—1.0 mV/m.
- Station No. 2—0.60 mV/m.
- Station No. 3—0.59 mV/m.

It is proposed to add a new limitation—0.68 mV/m. This is more than 50% of 1.31 mV/m, the RSS value of Nos. 1, 2 and 3. The RSS value of Station No. 1 and of the proposed station would be 1.21 mV/m which is more than twice as large as the limitation from Station No. 2 or 3. However, under the above provision the new signal and the three existing interferences are nevertheless calculated for purposes of comparative studies, resulting in an RSS value of 1.47 mV/m. However, if the proposed station is ultimately authorized, only No. 1 and the new signal are included in all subsequent calculations for the reason that Nos. 2 and 3 are less than 50% of 1.21 mV/m, the RSS value of the new signal and No. 1.

(iii) Station A receives interference from:

- Station No. 1—1.0 mV/m.
- Station No. 2—0.60 mV/m.
- Station No. 3—0.59 mV/m.

No. 1 proposes to increase the limitation it imposes on Station A to 1.21 mV/m. Although the limitations from stations Nos. 2 and 3 are less than 50% of the 1.21 mV/m limitation, under the above provision they are nevertheless included for comparative studies, and the RSS limitation is calculated to be 1.47 mV/m. However, if the increased proposed by Station No. 1 is authorized, the RSS value then calculated is 1.21 mV/m because Stations Nos. 2 and 3 are excluded in view of the fact that the limitations they impose are less than 50% of 1.21 mV/m.

(p) Objectionable interference from a station on the same channel shall be considered to exist to a station when, at the field strength contour specified in paragraph (v) of this section with respect to the class to which the station belongs, the field strength of an interfering station (or the root-sum-square value of the field strengths of two or more interfering stations) operating on the same channel, exceeds for 10 percent or more of the time the value of the permissible interfering signal set forth opposite such class in paragraph (v) of this Section.

(q) Objectionable interference from a station on an adjacent channel shall be considered to exist to a station when, at the normally protected contour of a desired station, the field strength of the ground-wave of an undesired station operating on an adjacent channel (or the root-sum-square value of the field strengths of two or more such undesired stations operating on the same adjacent channel) exceeds a value specified in paragraph (w) of this section.

(r) For the purpose of estimating the coverage and the interfering effects of stations in the absence of field strength measurements, use shall be made of Figure 8 of § 73.190, which describes the estimated effective field for one kw power input of simple vertical omnidirectional antennas of various heights with ground systems of at least 120 one-quarter wavelength radials. Certain approximations, based on the curve or other appropriate theory, may be made when other than such antennas and ground systems are employed, but in any event the effective field to be employed shall not be less than given in the following:

Class of station:	<i>Effective field</i>
I -----	225 mV/m
II and III -----	175 mV/m
IV -----	150 mV/m

In case a directional antenna is employed, the interfering signal of a broadcasting station will vary in different directions, being greater than the above values in certain directions and less in others, depending upon the design and adjustment of the directional antenna system. To determine the interference in any direction the measured or calculated radiated field (unabsorbed field strength at 1 mile from the array) must be used in conjunction with the appropriate propagation curves. (See § 73.185 for further discussion and solution of a typical directional antenna case.)

(s) The existence or absence of objectionable groundwave interference from stations on the same or adjacent channels shall be determined by actual measurements made according to the method described in § 73.186, or, in the absence of such measurements, by reference to the propagation curves of § 73.184. The existence or absence of objectionable interference due to skywave propagation shall be determined by reference to the appropriate propagation curves in Figure 1a or Figure 2 of § 73.190.

NOTE: In the case of applications tendered on or before September 29, 1965, for new or changed facilities on the clear channels listed in § 73.25(b), Figure 1 of § 73.190 shall be used instead of Figure 1a.

(t) In computing the fifty percent and ten percent skywave field strength values of a station on a I-A or

I-B clear channel, use shall be made of the appropriate curve set forth in Figure 1a of § 73.190, entitled "Skywave Signals for 10% and 50% of the time." In computing the ten percent skywave field strength values of a station on any other channel, use shall be made of the appropriate curve set forth in Figure 2 of § 73.190, entitled "10 percent Skywave Signal Range." (In the case of Class IV stations on local channels, simplifying assumptions may be made. See note to § 73.182(a) (4).) The pertinent vertical angle shall be determined by use of Figure 6a of § 73.190, entitled "Angles of Departure vs. Transmission Range", for stations on all channels.

NOTE: In the case of applications tendered on or before September 29, 1965, for new or changed facilities on the clear channels listed in § 73.25(b), Figure 1 of § 73.190 entitled "Average Skywave Field Strength", entitled "Variation with Figure 1a, and Figure 6 of § 73.190, entitled "Variation with Distance of Two Important Parameters in the Theory of Skywave Propagation", shall be used instead of Figure 6a.

(u) The distance to any specified groundwave field strength contour for any frequency may be determined from the appropriate curves in § 73.184 entitled "Ground Wave Field Strength vs Distance."

(v) Protected service contours and permissible interference signals for broadcast stations are as follows (for Class I and Class II-A stations, see paragraph (a) of this section):

Class of station	Class of channel used	Permissible power	Signal intensity contour of area protected from objectionable interference <sup>1</sup>		Permissible interfering signal on same channel <sup>2</sup>	
			Day <sup>3</sup>	Night	Day <sup>3</sup>	Night <sup>4</sup>
I-A	Clear	50 kW	{ SC 100 uV/m AC 500 uV/m	SC 500 uV/m (50% skywave) <sup>5</sup> AC 500 uV/m <sup>2</sup>	} 5 uV/m	25 uV/m <sup>7</sup>
I-B	do	10 kW to 50 kW	{ SC 100 uV/m AC 500 uV/m	SC 500 uV/m (50% skywave) AC 500 uV/m <sup>2</sup>		
II-A	do	{ 0.25 kW to 50 kW (daytime) 10 kW to 50 kW (nighttime)	} 500 uV/m	500 uV/m <sup>3</sup>	} 25 uV/m	Do.
II-B and II-D	do	0.25 kW to 50 kW		500 uV/m		
II-B and II-D <sup>6</sup>	do	0.25 kW to 1 kW <sup>8</sup>	do	10,000 uV/m <sup>8</sup>	do	500 uV/m <sup>8</sup>
III-A	Regional	1 kW to 5 kW	do	2500 uV/m <sup>2</sup>	do	125 uV/m
III-B	do	0.5 to 1 kW (night), and 5 kW (day)	do	4000 uV/m <sup>2</sup>	do	200 uV/m
IV	Local	0.25 kW (night), and 0.25 to 1 kW (day)	do	Not prescribed <sup>4</sup>	do	Not prescribed <sup>4</sup>

<sup>1</sup> When a station is already limited by interference from other stations to a contour of higher value than that normally protected for its class, this contour shall be the established standard for such station with respect to interference from all other stations.

<sup>2</sup> For adjacent channel, see paragraph (w) of this section.

<sup>3</sup> Groundwave.

<sup>4</sup> Skywave field intensity for 10 percent or more of the time.

<sup>5</sup> These values are with respect to interference from all stations except Class I-B, which stations may cause interference to a field intensity contour of higher value. However, it is recommended that Class II stations be so located that the interference received from Class I-B stations will not exceed these values. If the Class II stations are limited by Class I-B stations to higher values, then such values shall be the established standard with respect to protection from all other stations.

<sup>6</sup> See paragraph (a)(4) of this section.

<sup>7</sup> Class I-A stations on channels reserved for the exclusive use of one station during nighttime hours are protected from co-channel interference on that basis.

<sup>8</sup> Applies only to Class II-B stations coming within section 73.21(a)(2)(ii)(C), and to the operation of limited-time Class II-D stations during nighttime hours other than those during which they were authorized to operate as of June 1, 1980.

SC=Same channel. AC=Adjacent channel.

(w) The following table is to be used for determining the minimum ratio of the field intensity of a desired to an undesired signal for interference free service. In the case of a desired groundwave signal interfered with by two or more skywave signals on the same frequency, the RSS value of the latter is used. From the table, it is apparent that in many cases stations operating on channels 10 and 20 kilohertz apart may be operated with antenna systems side by side or otherwise in proximity without any indications of interference if the interference is defined only in terms of permissible ratios listed in this paragraph. As a practical matter, serious interference problems may arise when two or more stations with the same general service area are operated on channels 10, 20, and 30 kHz apart.

Frequency separation of desired to undesired signals--	Desired groundwave to--		Desired 50 percent skywave to undesired 10 percent skywave
	Undesired ground-wave	Undesired 10 percent skywave	
0 kHz.....	20:1	20:1	20:1
10 kHz.....	1:1	1:5	(1)

<sup>1</sup> The secondary service area of a Class I station is not protected from adjacent channel interference. However, if it is desired to make a determination of the area in which adjacent channel groundwave interference (10 kHz removed) to skywave service exists, it may be considered as the area where the ratio of the desired 50 percent skywave of the Class I station to the undesired groundwave of a station 10 kHz removed is 1 to 4.

(x) Two stations, one with a frequency twice that of the other, should not be assigned in the same groundwave service area unless special precautions are taken to avoid interference from the second harmonic of the lower frequency. In selecting a frequency, consideration should be given to the fact that occasionally the frequency assignment of two stations in the same area may bear such a relation to the intermediate frequency of some broadcast receivers as to cause so-called "image" interference. However, since this can usually be rectified by read-

justment of the intermediate frequency of such receivers, the Commission in general will not take this kind of interference into consideration in allocation problems.

(y) Two stations operating with synchronized carriers and carrying the identical program will have their groundwave service subject to some distortion in areas where the signals from the two stations are of comparable strength. For the purpose of estimating coverage of such stations, areas in which the signal ratio is between 1 to 2 and 2 to 1 will not be considered as having satisfactory service.

NOTE: Two stations are considered to be operated synchronously when the carriers are maintained within one-fifth of a hertz of each other and they transmit identical programs.

【§ 73.182 (a) (1) (i) revised; (a) (1) (i) (A) and (B) added; (a) (2) revised, (a) (2) (i), (ii), and (iii) added; paragraphs (i) (o), and (v) revised; eff. 8-1-80; (f) revised eff. 4-30-80; (a) (3) (ii) revised eff. 3-17-81; III (80)-1】

§ 73.183 Groundwave signals.

(a) Interference that may be caused by a proposed assignment or an existing assignment during daytime hours should be determined, when possible, by measurements on the frequency involved or on another frequency over the same terrain and by means of the curves in § 73.184 entitled "Ground Wave Field Strength versus Distance."

(b) In determining interference based upon field intensity measurements, it is necessary to do the following: First, establish the outer boundary of the protected service area of the desired station in the direction of the station that may cause interference to it. Second, at this boundary, measure the interfering signal from the undesired station. The ratio of the desired to the undesired signal given in § 73.182(w) should be applied to the measured signals



should be applied to the measured signals and if the required ratio is observed, no objectionable interference is foreseen. When measurements of both the desired and undesired stations are made in one area to determine the point where objectionable interference from groundwave signals occur or to establish other pertinent contours, several measurements of each station shall be made within a few miles of this point or contour. The effective field of the antennas in the pertinent directions of the stations must be established and all measurements must be made in accordance with § 73.186.

NOTE: International agreement in the matter of standards for good engineering practice concerning determination of ground conductivity by field strength measurements has not been arrived at as contemplated by NARBA, and the United States has no established procedures for reciprocal consideration of such measurements with any country except Canada. Therefore, groundwave field strength measurements will not be accepted or considered for the purpose of establishing that interference to a station in a foreign country other than Canada, or that signal strength at the border thereof, would be less than indicated by the application of the ground conductivity maps and engineering standards contained in this part and applicable international agreements. Satisfactory groundwave measurements offered for the purpose of demonstrating values of conductivity other than those shown by Figure M3 in problems involving protection of Canadian stations or the Canadian border will be considered only if, after review thereof, the appropriate agency of the Canadian government notifies the Commission that they are acceptable for such purpose.

(c) In all cases where measurements taken in accordance with the requirements are not available, the groundwave strength must be determined by means of the pertinent map of ground conductivity and the groundwave curves of field strength versus distance. The conductivity of a given terrain may be determined by measurements of any broadcast signal traversing the terrain involved. Figure M3 (see Note 1) shows the conductivity throughout the United States by general areas of reasonably uniform conductivity. When it is clear that only one conductivity value is involved, Figure R3 of § 73.190, which is a replica of Figure M3 and contained in these standards, may be used; in all other situations Figure M3 must be employed. It is recognized that in areas of limited size or over a particular path, the conductivity may vary widely from the values given; therefore, these maps are to be used only when accurate and acceptable measurements have not been made. (For determinations of interference and service requiring a knowledge of ground conductivities in Mexico, Annex XIV-C to the Agreement Between the United States of America and the United Mexican States Concerning Radio Broadcasting in the Standard Broadcasting Band (535-1605 kHz), Mexico, D.F., 1968, may be used. Similarly, for values of ground conductivity in Canada, a map issued by the Telecommunications Regulation Branch, Department of Communications, Ottawa, Ontario, entitled "Provisional Ground Conductivity Map," dated June 1, 1960, may be used. Where different conductivities appear in the maps of two countries on opposite sides of the border, such differences are to be considered as real, even if they are not explained by geophysical cleavages. A uniform ground conductivity of 10 millimhos per meter may be assumed for Cuba.)

NOTE 1: Figure R3 in § 73.190 is a replica of Figure M3. Figure M3, which is incorporated in these Standards by reference, was derived by indicating ground conductivity values in the United States on the United States Albers equal area projection map (based on standard parallels 29½° and 45½°; North American datum; scale 1/2,500,000). Figure M3, consisting of two sections, an eastern and a western half, may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.

NOTE 2: Copies of "Provisional Ground Conductivity Map" may be obtained by addressing the Director General, Telecommunications Regulation Branch, Department of Communications, Ottawa, Ontario, Canada. Single copies are priced at \$5.00 (one copy consists of two sheets). Remittance should be made by check or money order payable to the Receiver General of Canada.

(d) Example of determining interference by the graphs in § 73.184:

It is desired to find whether objectionable interference exists between a 5 kW Class III station on 990 kHz and a 1 kW Class III station on 1000 kHz, the stations being separated by 130 miles; both stations use non-directional antennas having such height as to produce an effective field for 1 kW of 175 mV/m. (See § 73.185 in case of use of directional antennas.) The conductivity at each station and of the intervening terrain is determined as 6 mmhos/m. The protection to Class III stations during daytime is to the 500 uV/m contour. The distance to the 500 uV/m groundwave contour of the 1 kW station is determined by the use of the appropriate curve in § 73.184, Graph 12. Since the curve is plotted for 100 mV/m at a mile, to find the distance to the 500 uV/m contour of the 1 kW station, it is necessary to determine the distance to the 285 uV/m contour ( $\frac{100 \times 500}{175} = 285$ ). From the appropriate curve, the estimated radius of the service area for the desired station is found to be 39.5 miles. Subtracting this distance from the distance between the two stations leaves 90.5 miles for the interfering signal to travel. From the above curve it is found that the signal from the 5 kW station at this distance would be 158 uV/m. Since a one to one ratio applies for stations separated by 10 kHz, the undesired signal at that point can have a value up to 500 uV/m without objectionable interference. If the undesired signal had been found to be greater than 500 uV/m, then objectionable interference would exist. For other channel separations, the appropriate ratio of desired to undesired signal should be used.

(e) Where a signal traverses a path over which different conductivities exist, the distance to a particular groundwave field strength contour shall be determined by the use of the equivalent distance method. Reasonably accurate results may be expected in determining field strengths at a distance from the antenna by application of the equivalent distance method when the unattenuated field of the antenna, the various ground conductivities and the location of discontinuities are known. This method considers a wave to be propagated across a given conductivity according to the curve for a homogeneous earth of that conductivity. When the wave crosses from a region of one conductivity into a region of a second conductivity, the equivalent distance of the receiving point from the transmitter changes abruptly but the field intensity does not. From a point just inside the second region the transmitter appears to be at that distance where, on the curve for a homogeneous earth of the second conductivity, the field strength equals the value that occurred just across the boundary in the first region. Thus the equivalent distance from the receiving point to the transmitter may be either greater or less than the actual distance. An imaginary transmitter is considered to exist at that equivalent distance. This technique is not intended to be used as a means of evaluating unattenuated field or ground conductivity by the analysis of measured data. The

method to be employed for such determinations is set out in § 73.186.

(f) An example of the use of equivalent distance method follows:

It is desired to determine the distance to the 0.5 mV/m and 0.025 mV/m contours of a station on a frequency of 1000 kHz with an inverse distance field of 100 mV/m at one mile being radiated over a path having a conductivity of 10 mmhos/m for a distance of 15 miles, 5 mmhos/m for the next 20 miles and 15 mmhos/m thereafter. By the use of the appropriate curves in § 73.184, Graph 12, it is seen that at a distance of 15 miles on the curve for 10 mmhos/m the field is 3.45 mV/m. The equivalent distance to this field intensity for a conductivity of 5 mmhos/m is 11 miles. Continuing on the propagation curve for the second conductivity, the 0.5 mV/m contour is encountered at a distance of 27.9 miles from the imaginary transmitter. Since the imaginary transmitter was 4 miles nearer (15—11 miles) to the 0.5 mV/m contour, the distance from the contour to the actual transmitter is 31.9 miles (27.9+4 miles). The distance to the 0.025 mV/m contour is determined by continuing on the propagation curve for the second conductivity to a distance of 31 miles (11+20 miles), at which point the field is read to be 0.39 mV/m. At this point the conductivity changes to 15 mmhos/m and from the curve relating to that conductivity, the equivalent distance is determined to be 58 miles—27 miles more distant than would obtain had a conductivity of 5 mmhos/m prevailed. Using the curve representing the conductivity of 15 mmhos/m the 0.025 mV/m contour is determined to be at an equivalent distance of 172 miles. Since the imaginary transmitter was considered to be 4 miles closer at the first boundary and 27 miles farther at the second boundary, the net effect is to consider the imaginary transmitter 23 miles (27—4 miles) more distant than the actual transmitter; thus the actual distance to the 0.025 mV/m contour is determined to be 149 miles (172—23 miles).

#### § 73.184 Groundwave field strength charts.

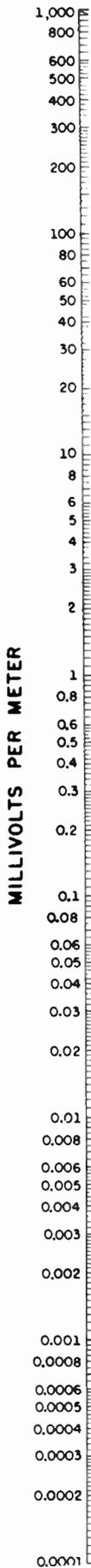
(a) Graphs 1 to 19A show the computed values of groundwave field strength as a function of the distance from the transmitting antenna. The groundwave field intensity is here considered to be that part of the vertical component of the electric field received on the ground which has not been reflected from the ionosphere nor the troposphere. These 20 charts were computed for 20 different frequencies, a dielectric constant of the ground equal to 15 for land and 80 for sea water (referred to air as unity) and for the ground conductivities (expressed in mmhos/m) given on the curves. The curves show the variation of the groundwave field intensity with distance to be expected for transmission from a short vertical antenna at the surface of a uniformly conducting spherical earth with the ground constants shown on the curves; the curves are for an antenna power and efficiency such that the inverse distance field is 100 mV/m at 1 mile. The curves are valid at distances large compared to the dimensions of the antenna for other than short vertical antennas.

(b) The inverse distance field (100 mV/m divided by the distance in miles) corresponds to the groundwave field intensity to be expected from an antenna with the same radiation efficiency when it is located over a perfectly conducting earth. To determine the value of the groundwave field strength corresponding to a value of inverse distance field other than 100 mV/m at 1 mile, simply multiply the field strength as given on

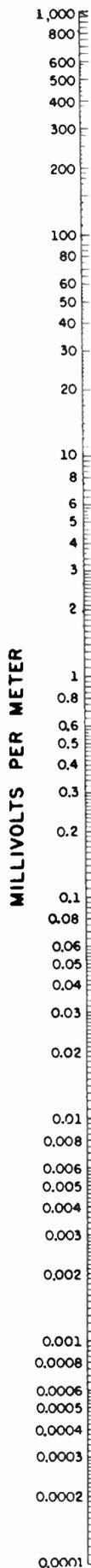
these charts by the desired value of inverse distance field at 1 mile divided by 100; for example, to determine the groundwave field strength for a station with an inverse distance field of 1700 mV/m at 1 mile, simply multiply the values given on the charts by 17. The value of the inverse distance field to be used for a particular antenna depends upon the power input to the antenna, the nature of the ground in the neighborhood of the antenna, and the geometry of the antenna. For methods of calculating the interrelations between these variables and the inverse distance field, see "The Propagation of Radio Waves Over the Surface of the Earth and in the Upper Atmosphere," Part II, by Mr. K. A. Norton, Proc. I. R. E., Vol. 25, September 1937, pp. 1203—1236.

(c) At sufficiently short distances (say less than 35 miles), such that the curvature of the earth does not introduce an additional attenuation of the waves, the graphs were computed by means of the plane earth formulas given in the paper, "The Propagation of Radio Waves Over the Surface of the Earth and in the Upper Atmosphere," Part I, by Mr. K. A. Norton, Proc. I. R. E., Vol. 24, October 1936, pp. 1367—1387. At larger distances the additional attenuation of the waves which is introduced by the effect of the curvature of the earth was introduced by the methods outlined in the papers, "The Diffraction of Electromagnetic Waves from an Electrical Point Source round a Finitely Conducting Sphere, with Applications to Radiotelegraphy and the Theory of the Rainbow," by Balh van der Pol and H. Bremmer, Part I, Phil. Mag., Vol. 24, p. 141, July 1937, Part II, Phil. Mag., Vol. 24, p. 82, Suppl., November 1937, "Ergebnisse einer Theorie ueber die Fortpflanzung elektron magnetischer Wellen ueber eine Kugel endlicher Leitfaehigkeit," by Balh van der Pol and H. Bremmer, Hochfrequenztechnik and Elektroakustik, Band 51, Heft 6, June 1938, "Further Note on the Propagation of Radio Waves over a Finitely Conducting Spherical Earth," by Balh van der Pol and H. Bremmer, Phil. Mag., Vol. 27, p. 261, March 1939. In order to allow for the refraction of the radio waves in the lower atmosphere due to the variation of the dielectric constant of the air with height above the earth, a radius of the earth equal to  $\frac{4}{3}$  the actual radius was used in the computations for the effect of the earth's curvature in the manner suggested by C. R. Burrows, "Radio Propagation over Spherical Earth," Proc. I.R.E., May 1935; i. e., the distance corresponding to a given value of attenuation due to the curvature of the earth in the absence of air refraction was multiplied by the factor  $(\frac{4}{3})^{\frac{2}{3}}=1.21$ . The amount of this refraction varies from day to day and from season to season, depending on the air mass conditions in the lower atmosphere. If  $k$  denotes the ratio between the equivalent radius of the earth and the true radius, the following table gives the values of  $k$  for several typical air masses encountered in the United States.

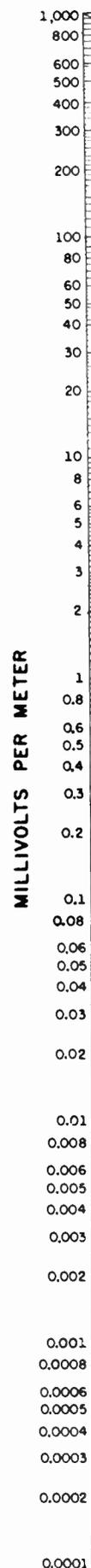
[Slider for use with Graphs 1-19A and 20.]



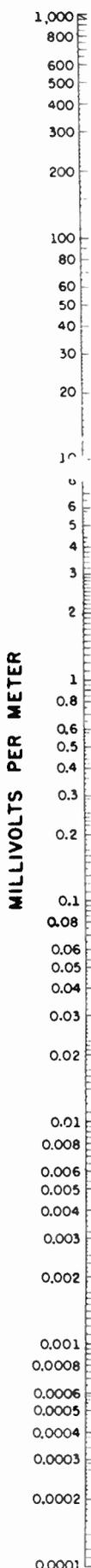
(SLIDER FOR USE WITH  
GRAPHS 1-19A AND 20)



(SLIDER FOR USE WITH  
GRAPHS 1-19A AND 20)



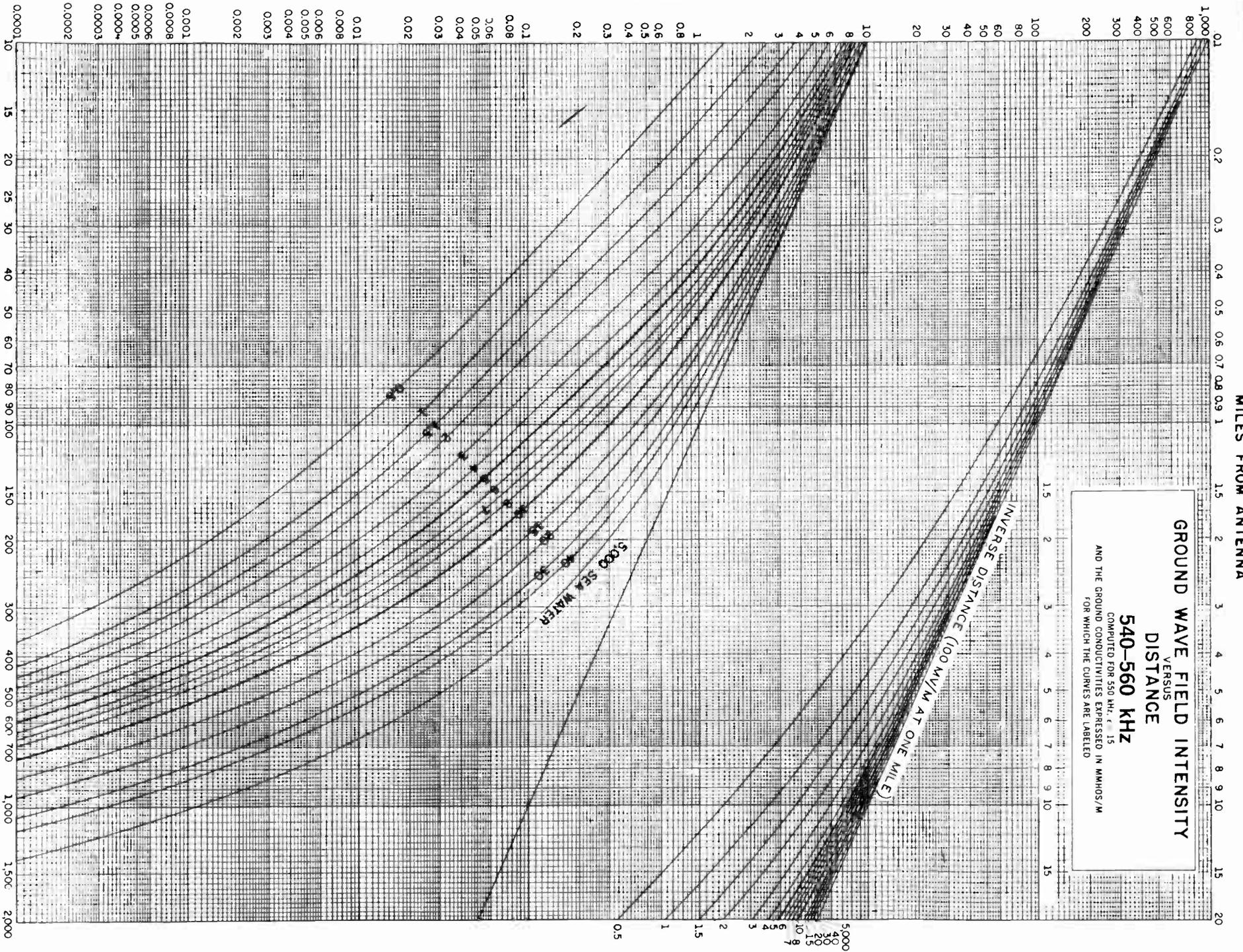
(SLIDER FOR USE WITH  
GRAPHS 1-19A AND 20)



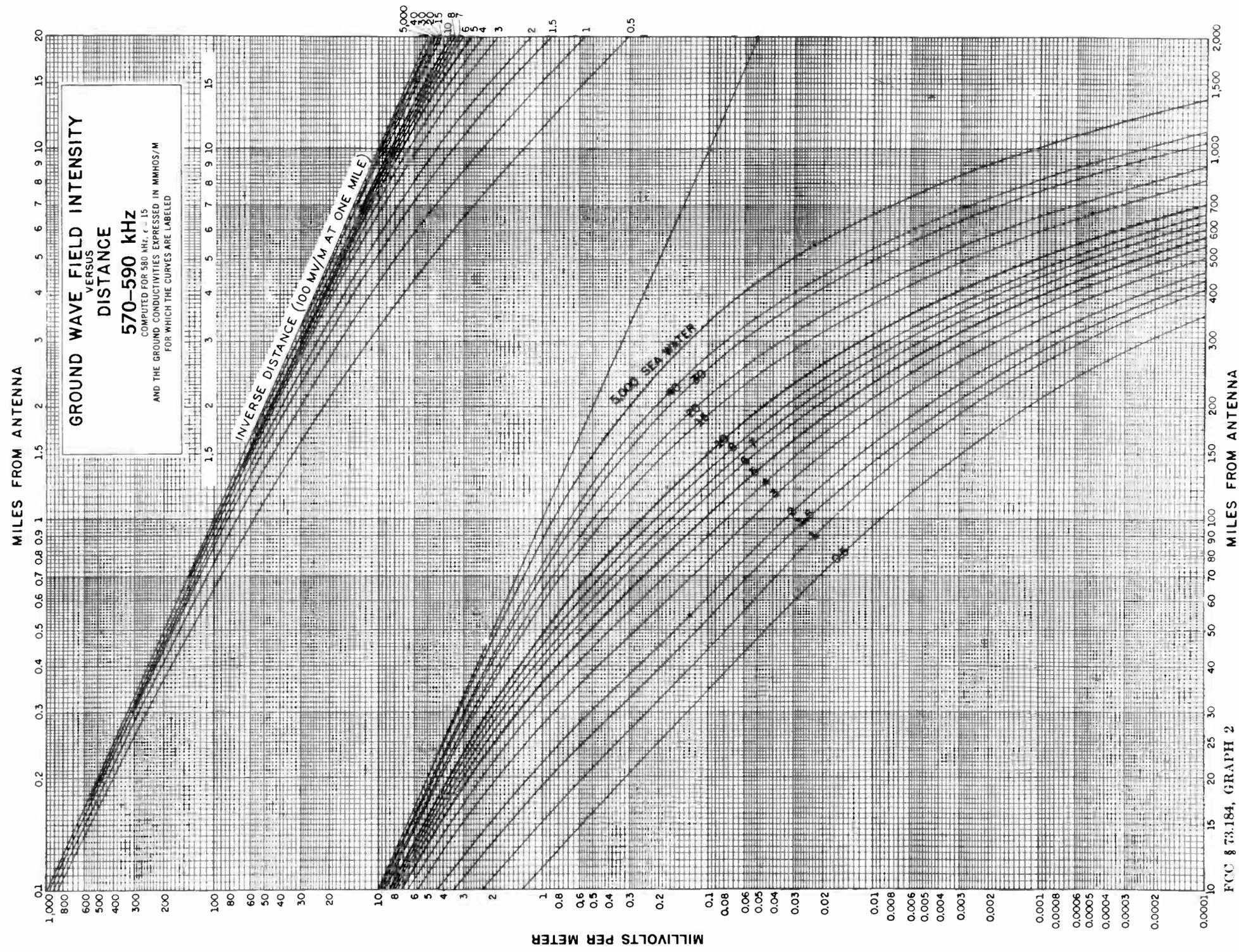
(SLIDER FOR USE WITH  
GRAPHS 1-19A AND 20)



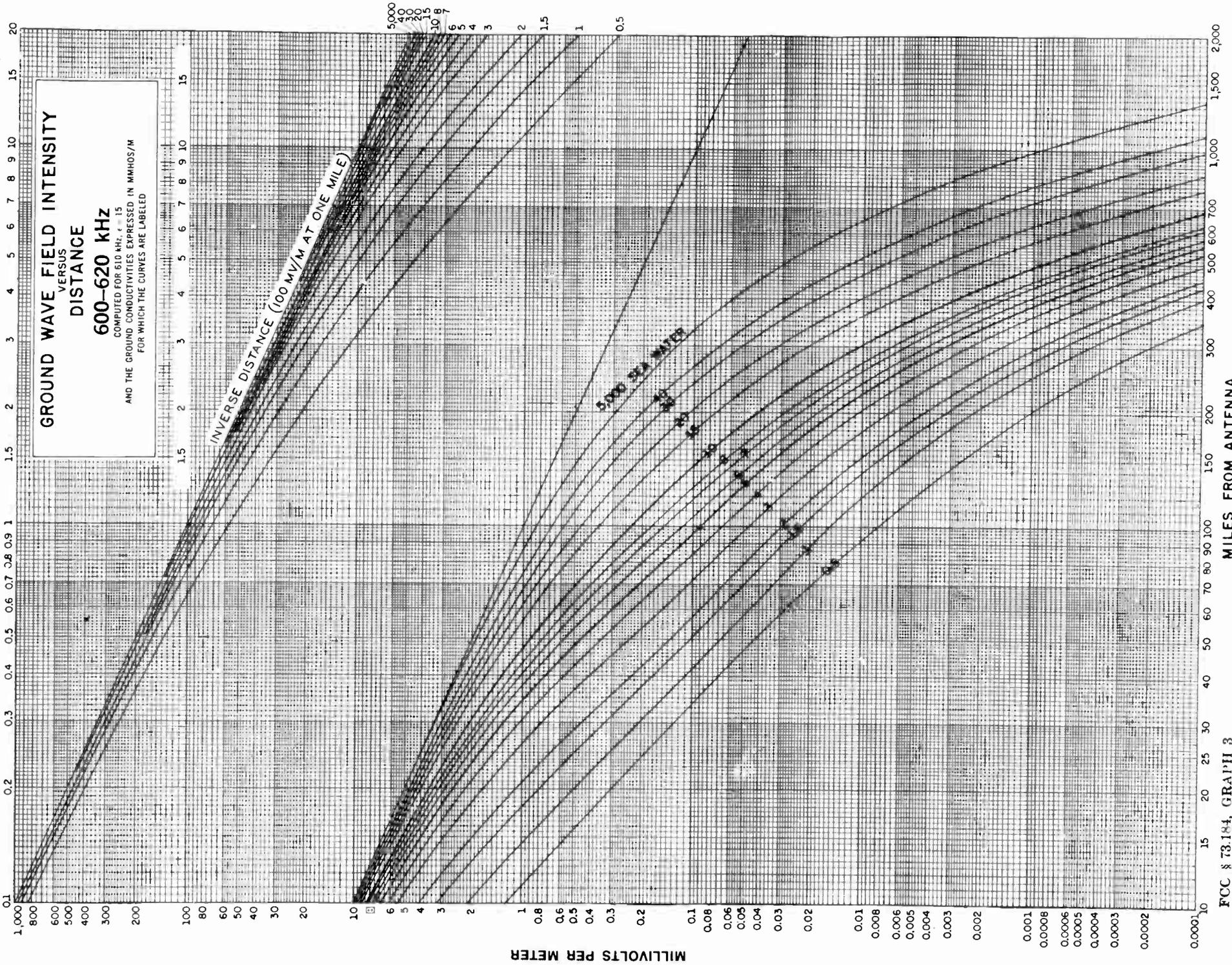
MILLIVOLTS PER METER



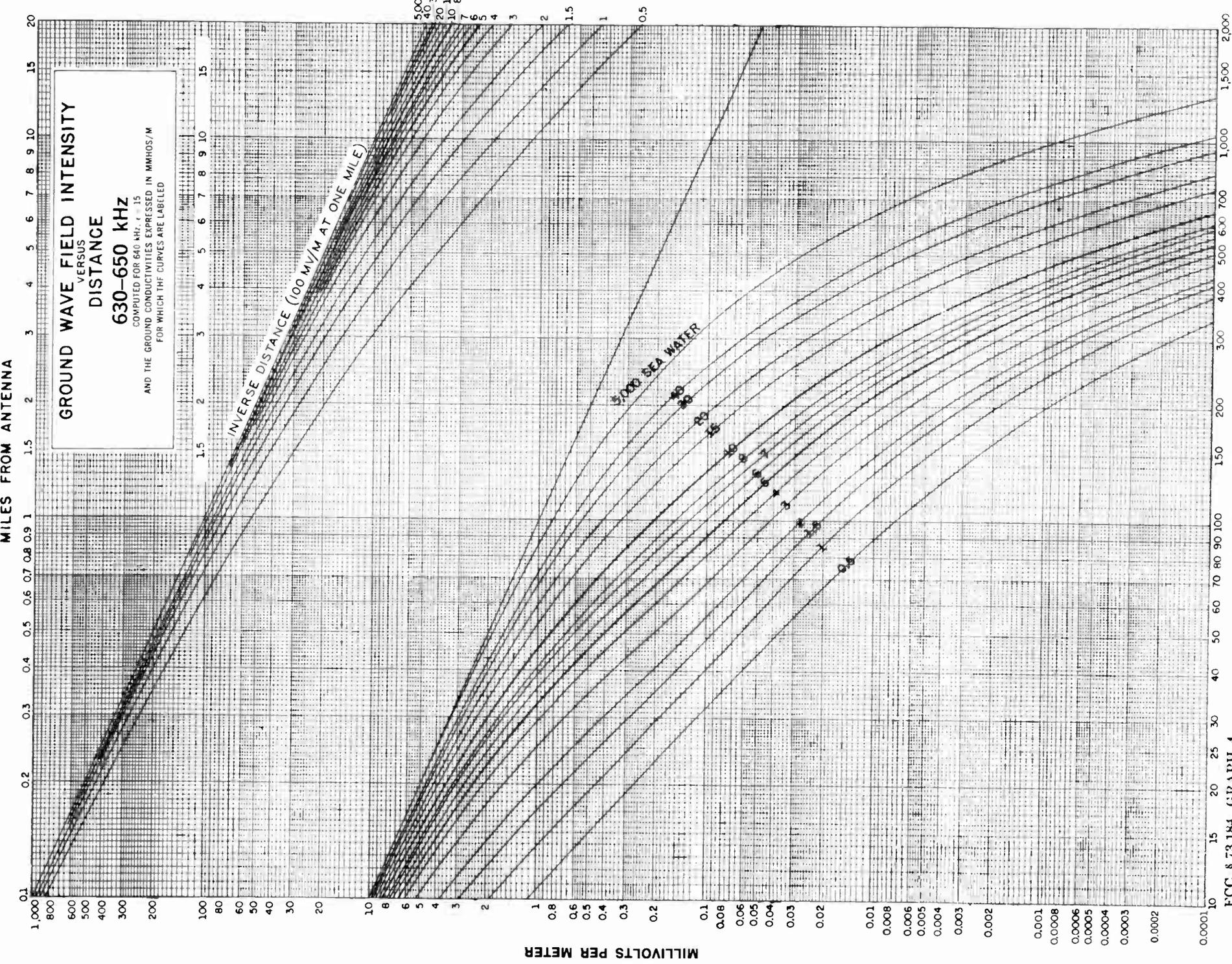




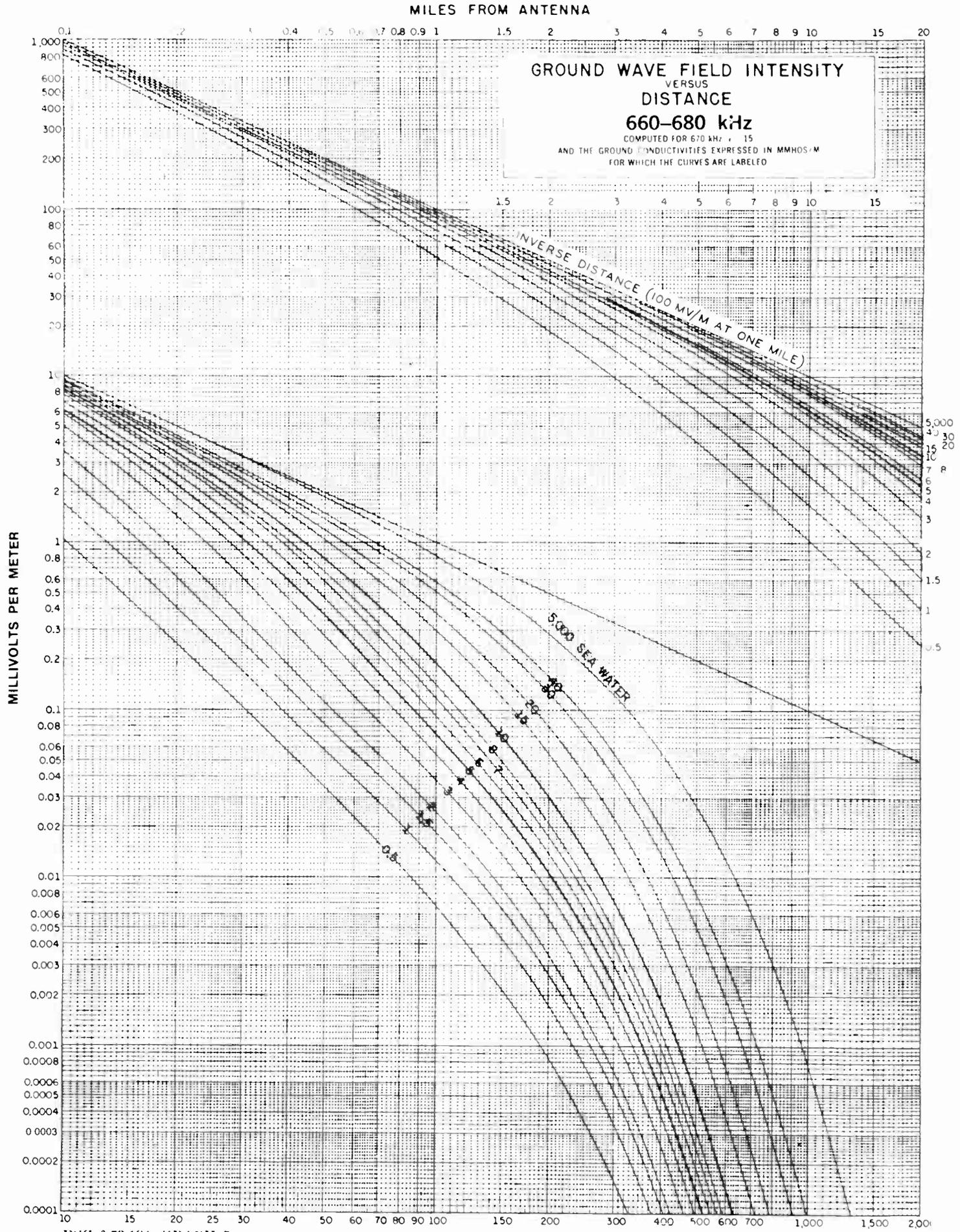




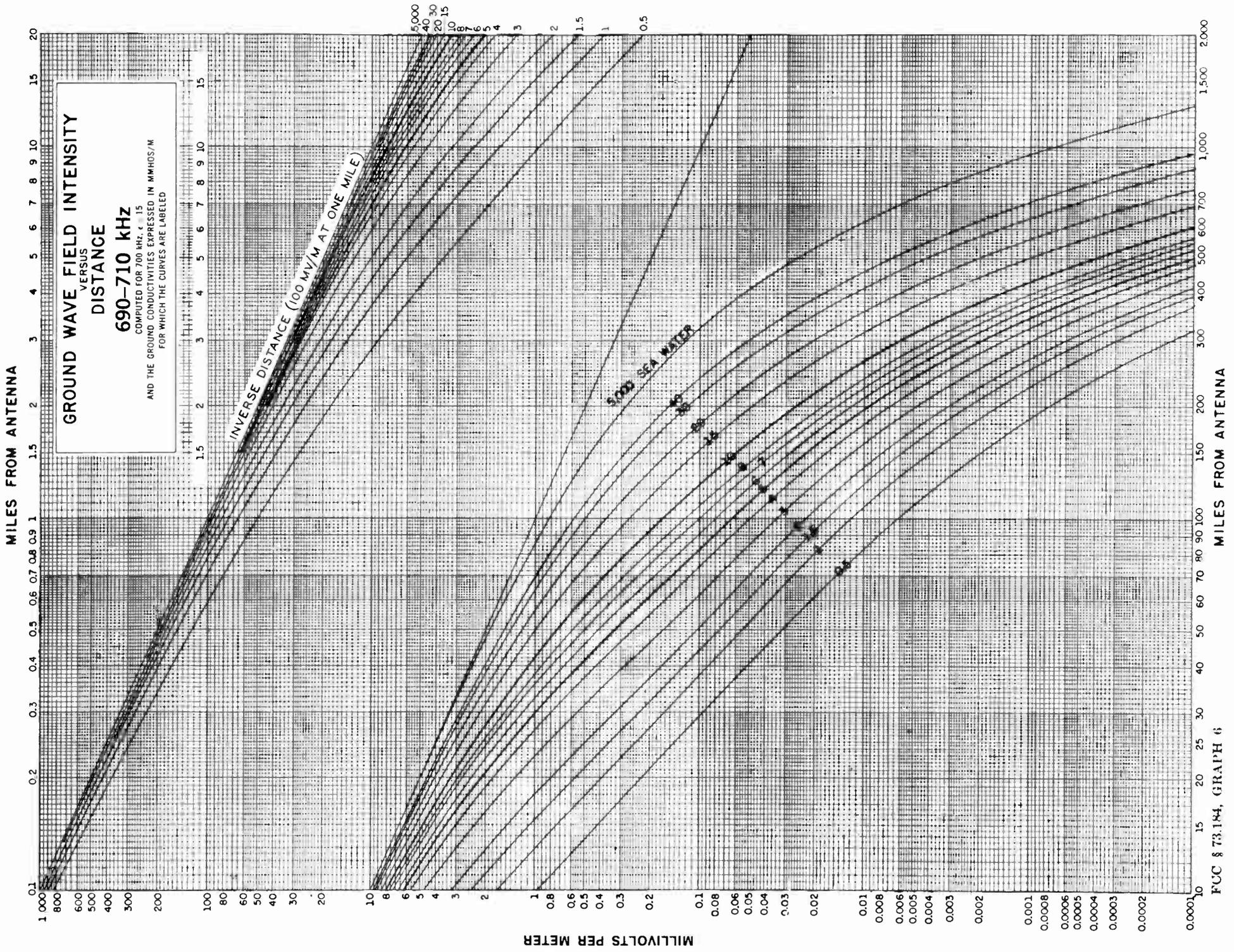














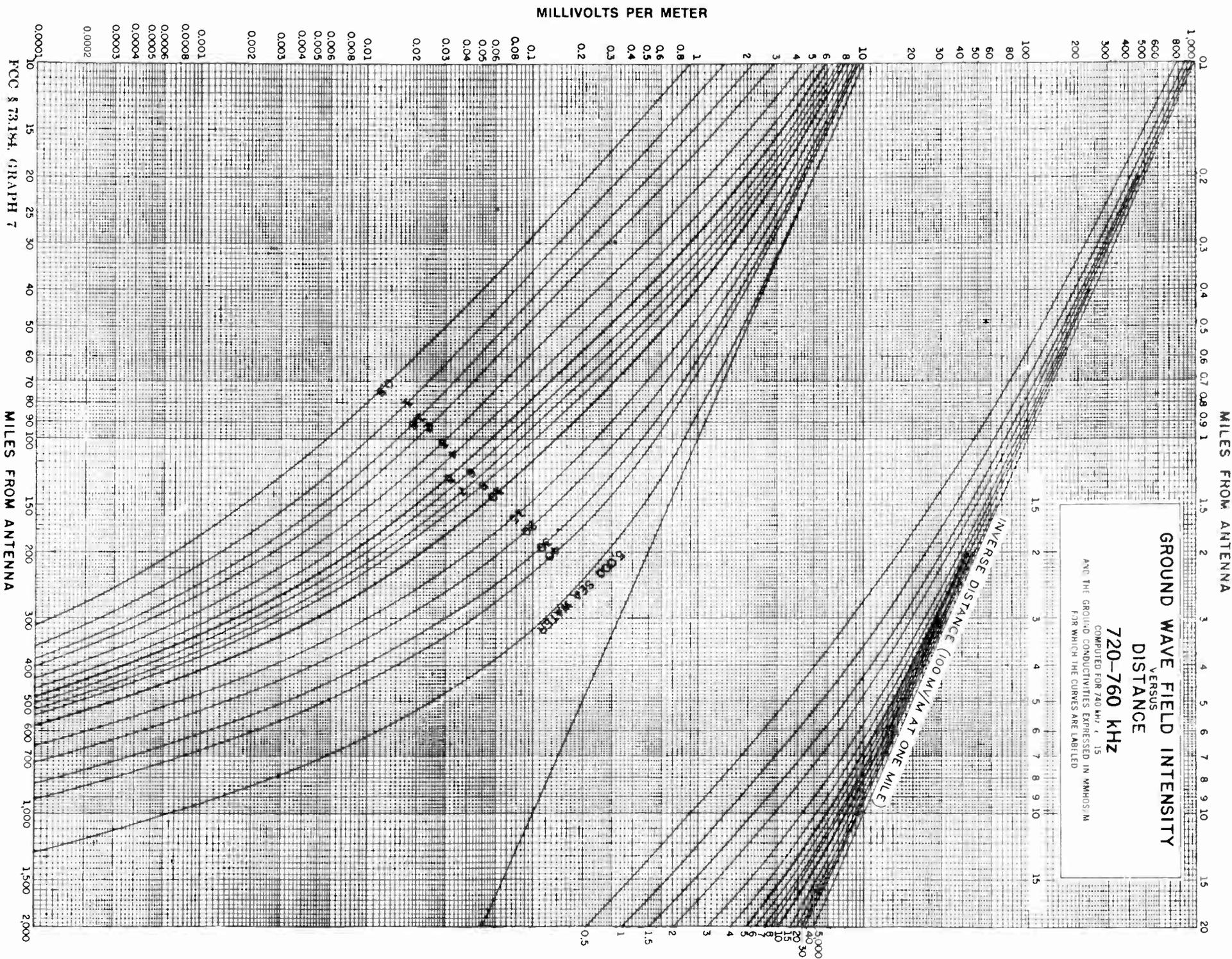
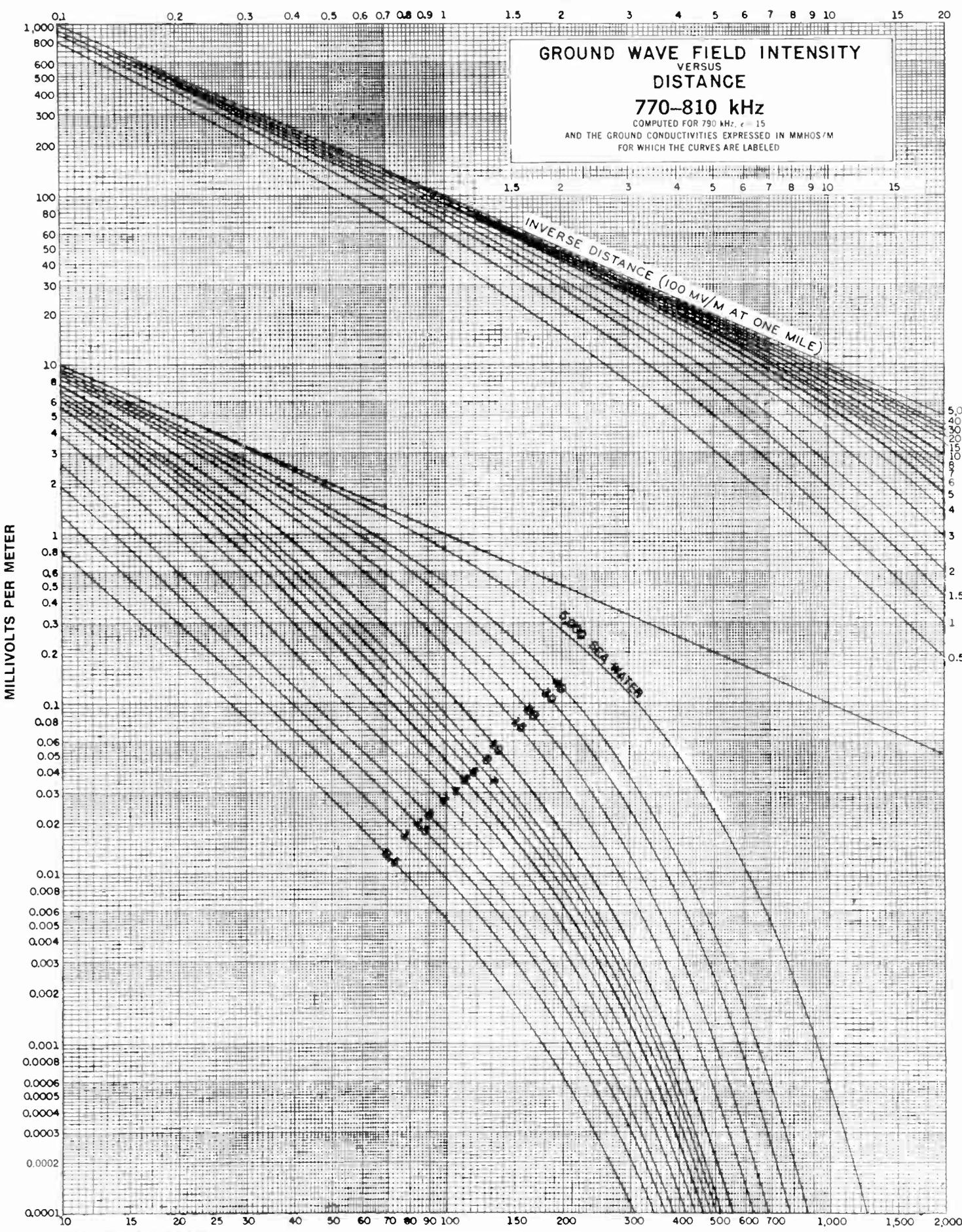


FIG 8 73184, GRAPH 7

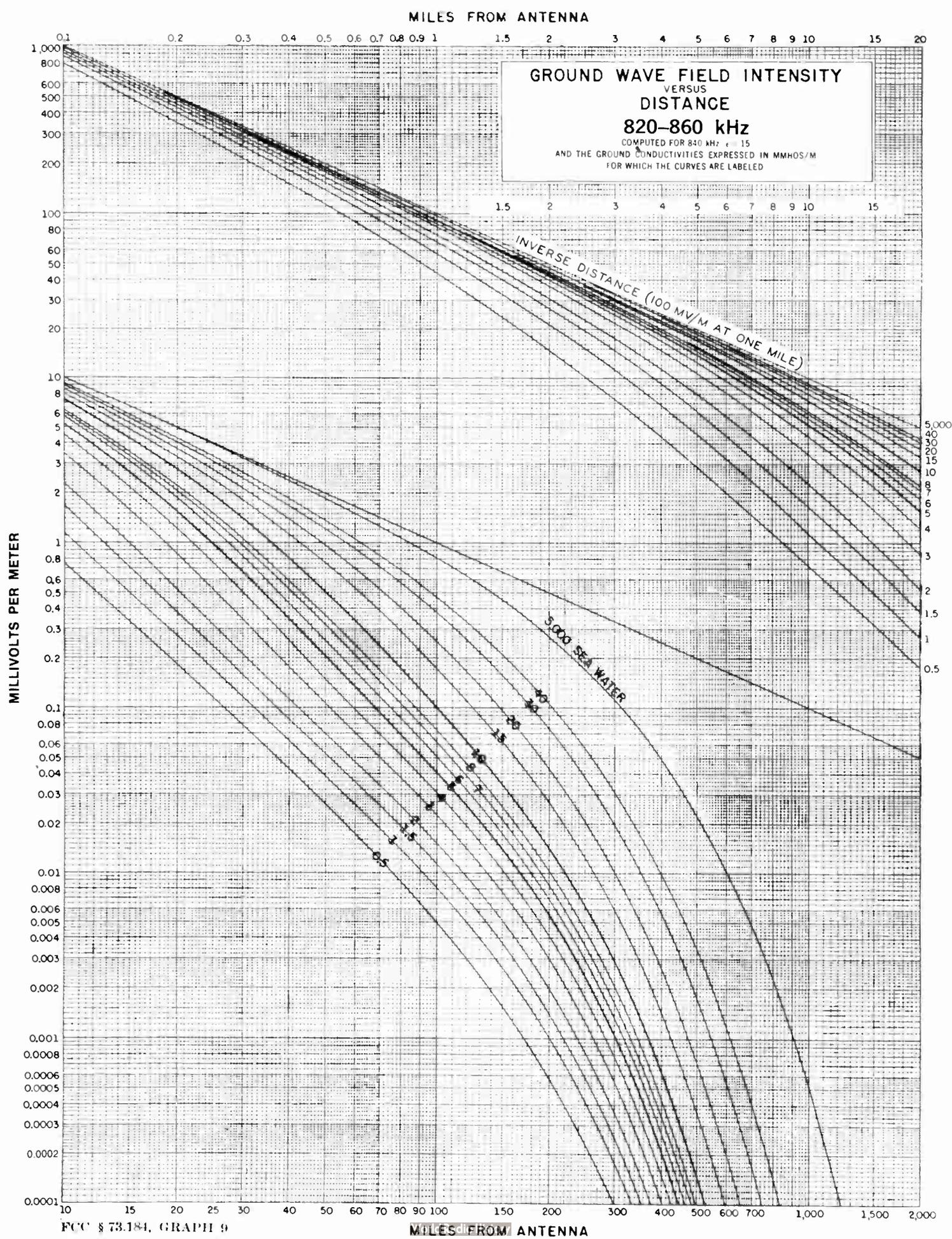
MILES FROM ANTENNA



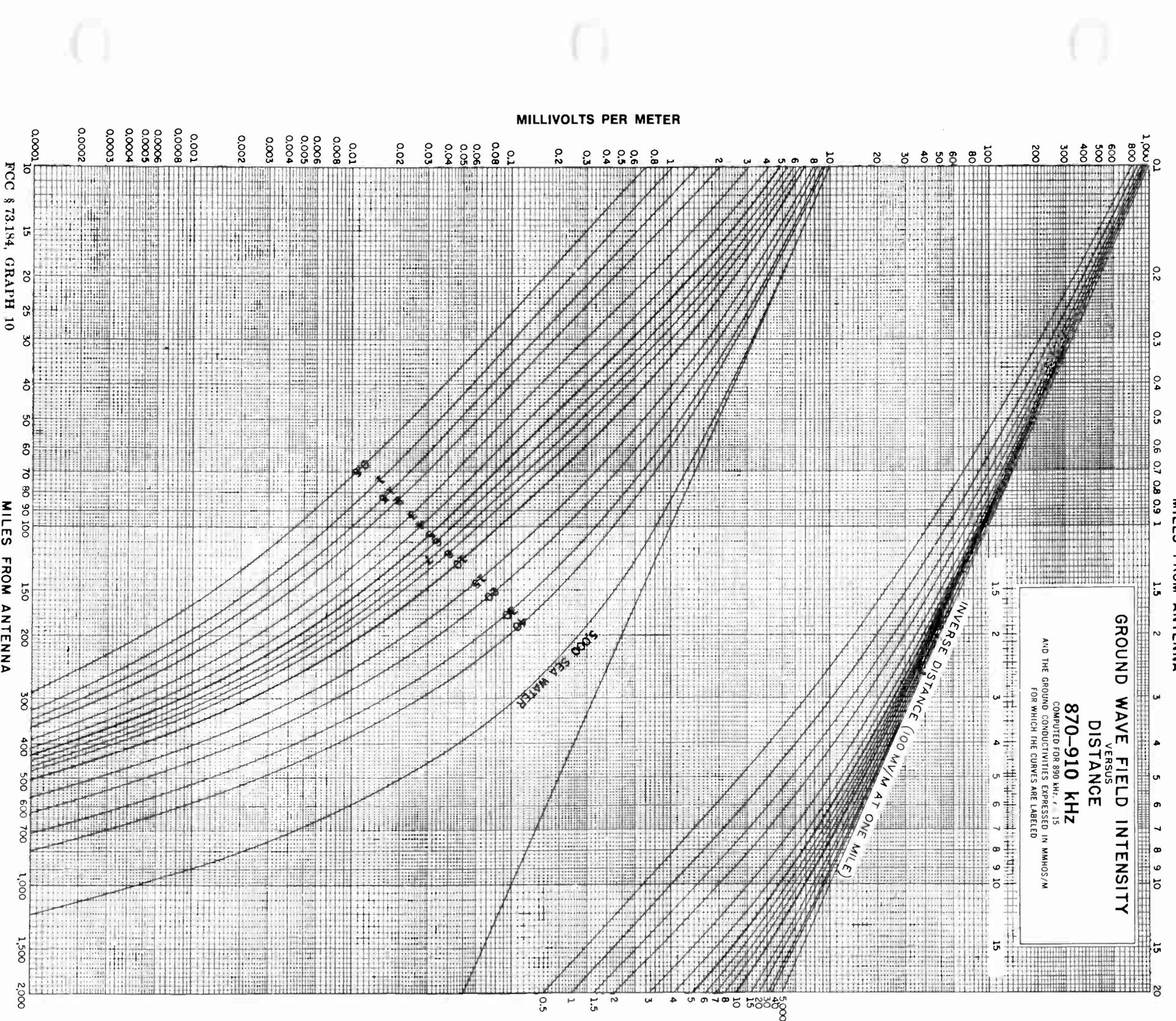
MILES FROM ANTENNA











FCC § 73.184, GRAPH 10

MILES FROM ANTENNA



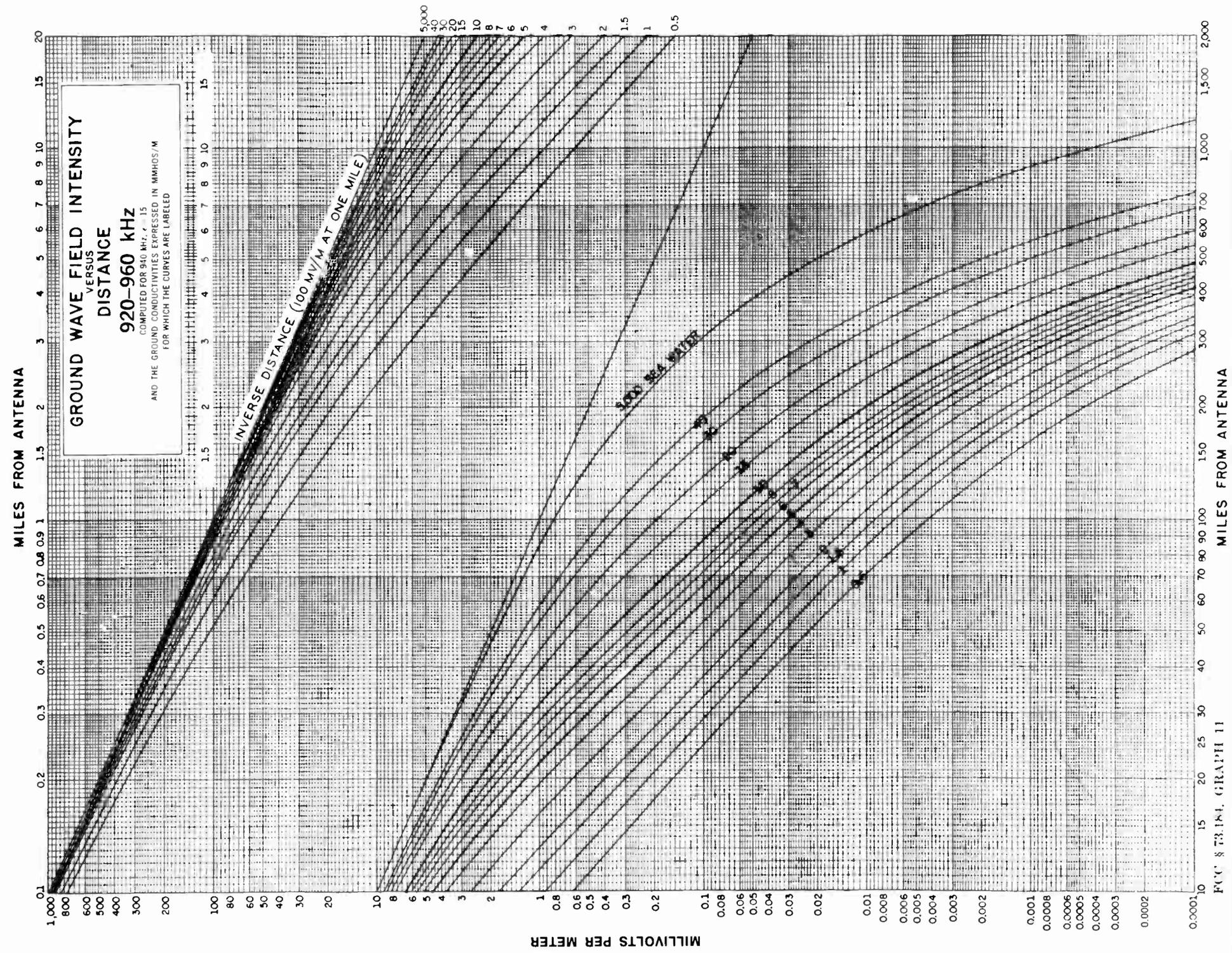


FIG. 8-73.184. GRAPH 11



MILES FROM ANTENNA

**GROUND WAVE FIELD INTENSITY  
VERSUS  
DISTANCE**

**970-1030 kHz**

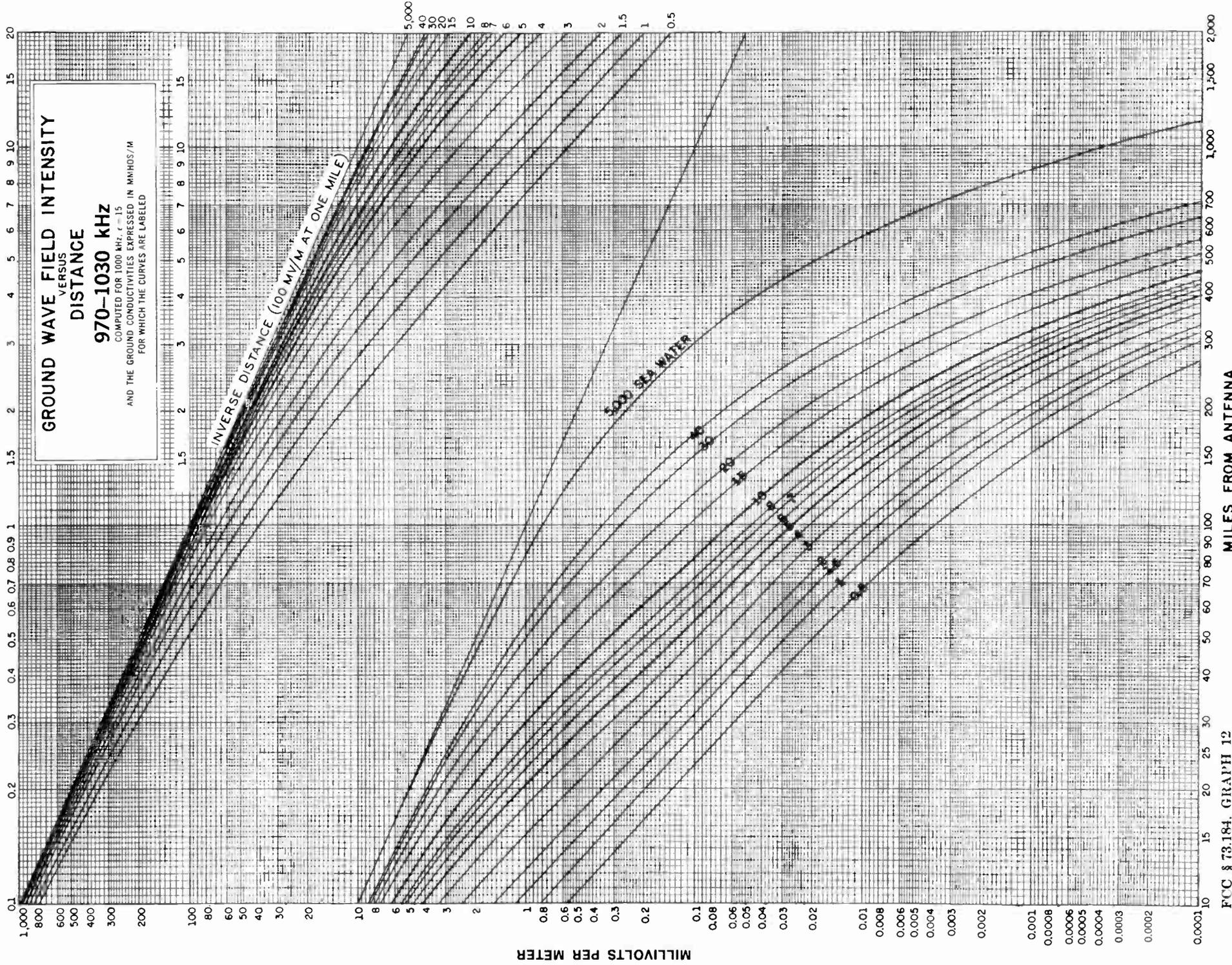
COMPUTED FOR 1000 kHz,  $\epsilon = 15$   
AND THE GROUND CONDUCTIVITIES EXPRESSED IN MMHOS/M  
FOR WHICH THE CURVES ARE LABELED

15  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1.5

INVERSE DISTANCE (100 MV/M AT ONE MILE)

5000 SEA WATER

5,000  
40  
30  
20  
15  
10  
9  
8  
6  
5  
4  
3  
2  
1.5  
1  
0.5



MILLIVOLTS PER METER

MILES FROM ANTENNA

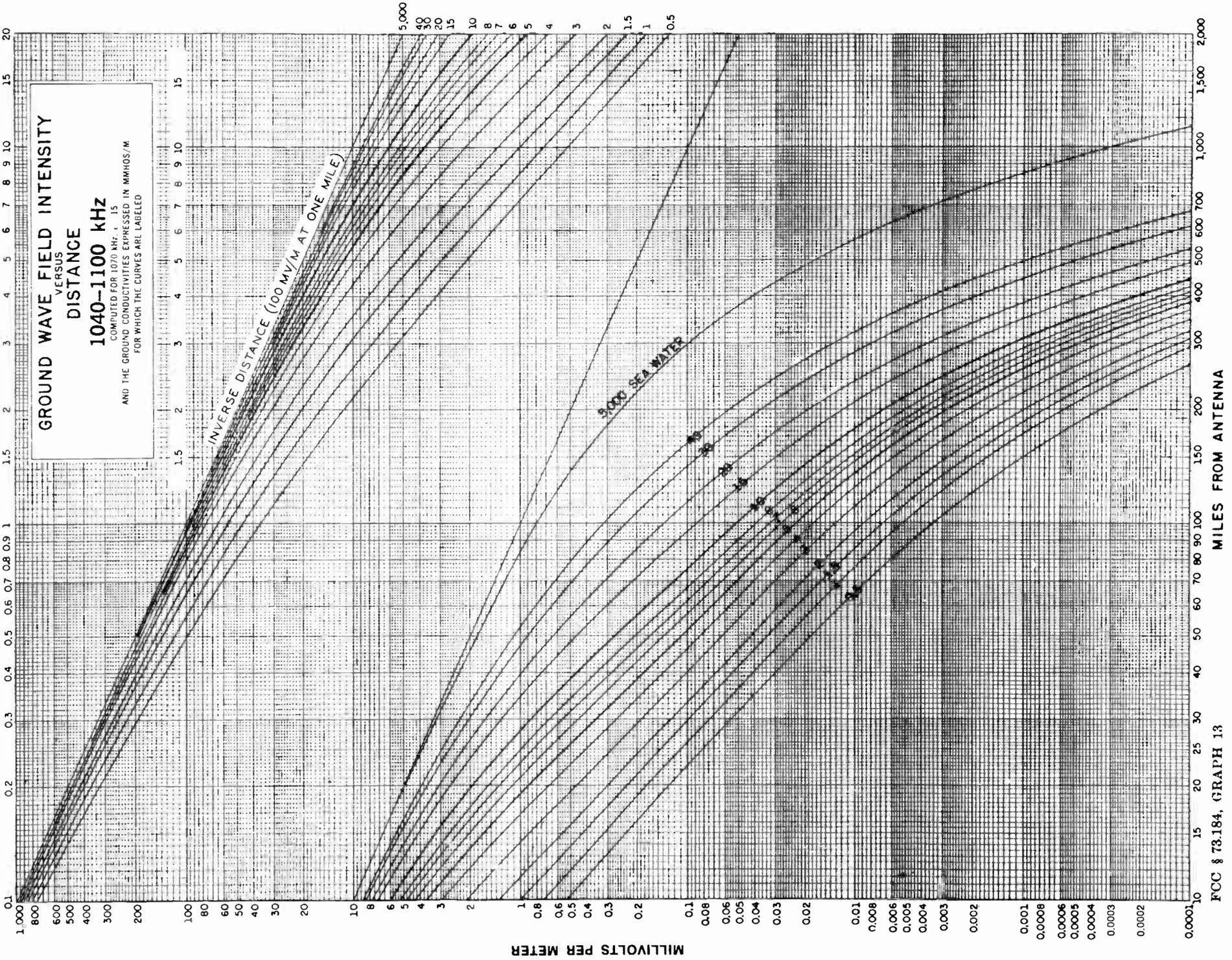
FCC § 73.184, GRAPH 12



**GROUND WAVE FIELD INTENSITY  
VERSUS  
DISTANCE**

**1040-1100 kHz**

COMPUTED FOR 1070 KHz.  $f = 15$   
AND THE GROUND CONDUCTIVITIES EXPRESSED IN MMHOS/M  
FOR WHICH THE CURVES ARE LABELED

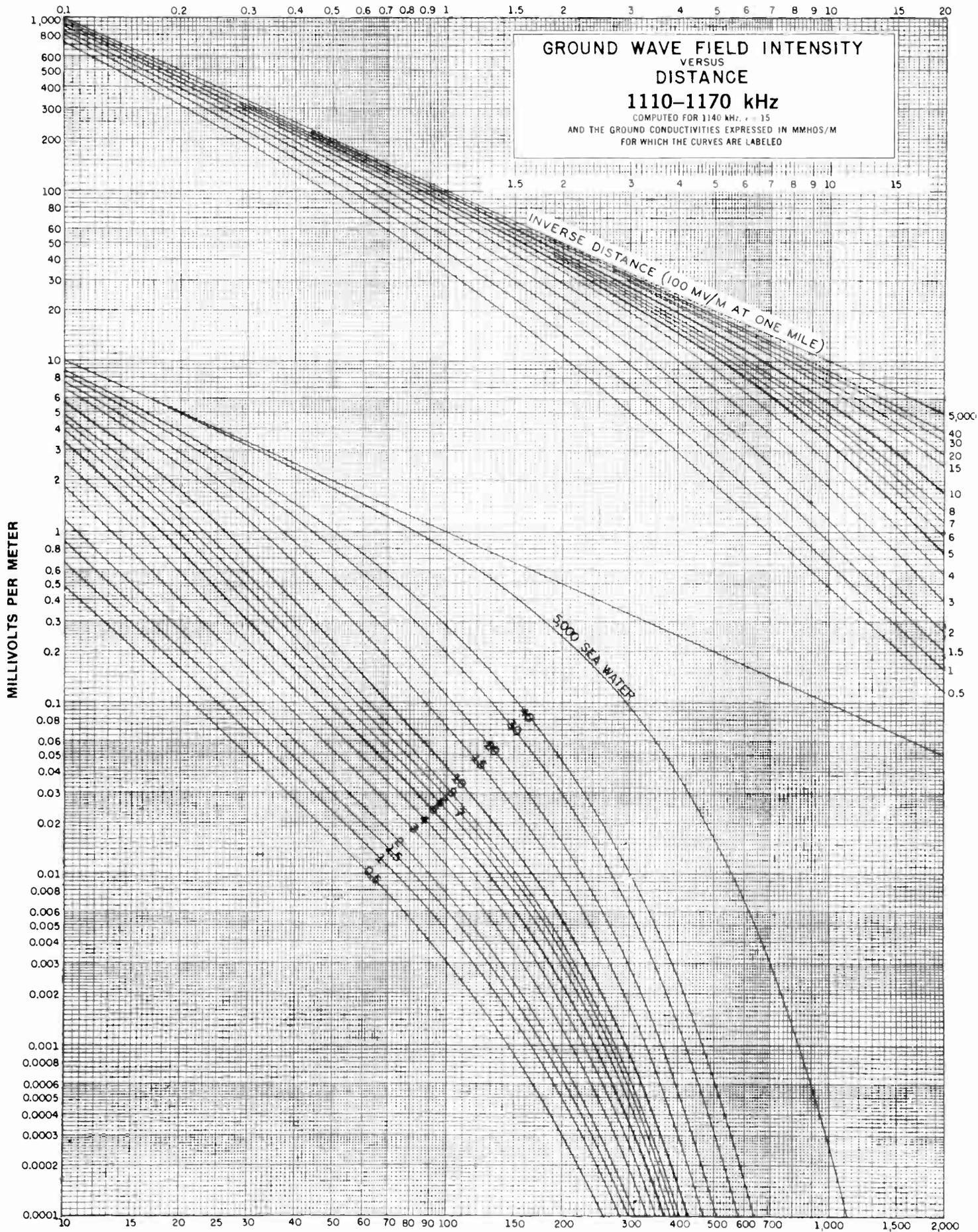




MILES FROM ANTENNA

# GROUND WAVE FIELD INTENSITY VERSUS DISTANCE 1110-1170 kHz

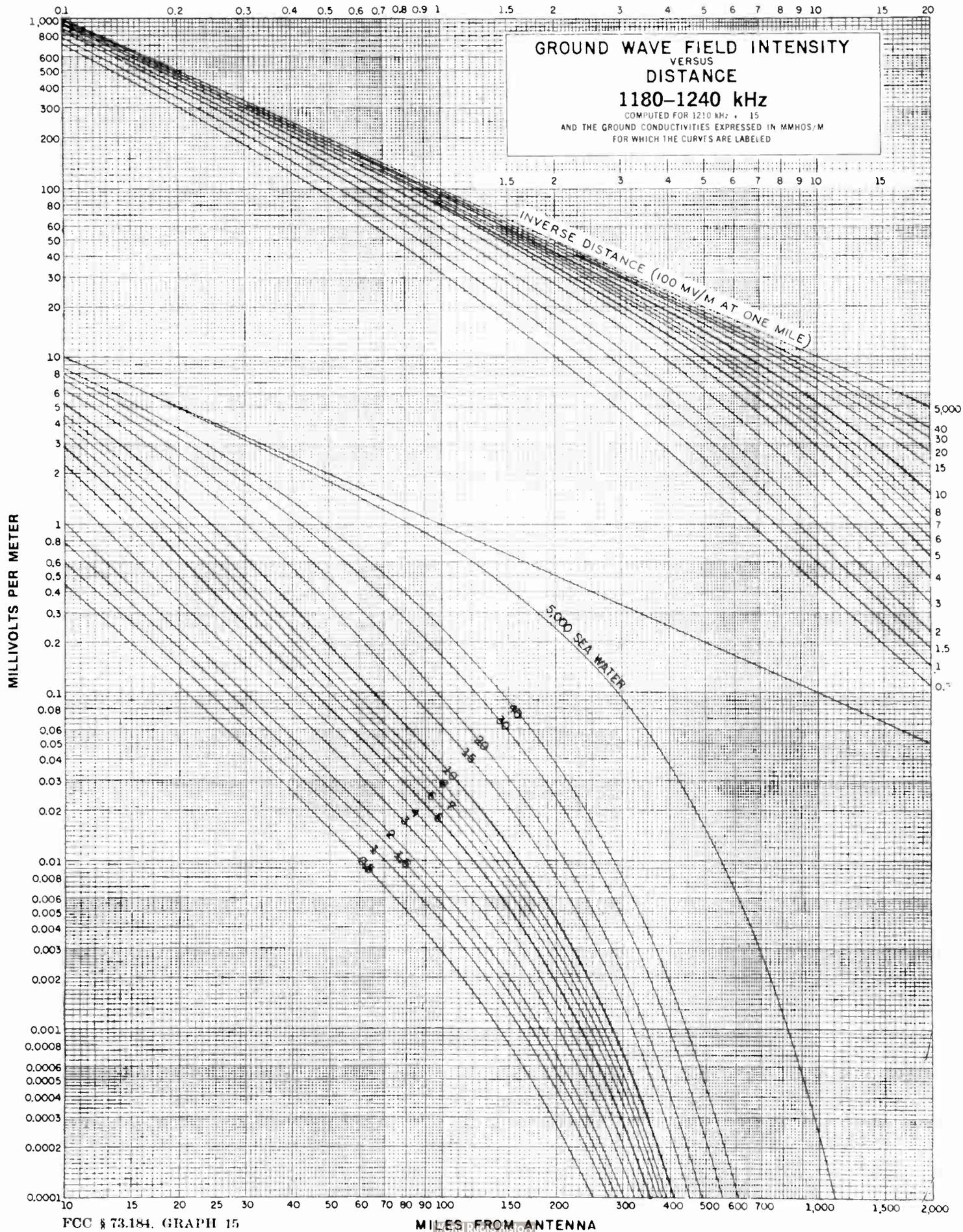
COMPUTED FOR 1140 kHz,  $\epsilon = 15$   
AND THE GROUND CONDUCTIVITIES EXPRESSED IN MMHOS/M  
FOR WHICH THE CURVES ARE LABELED



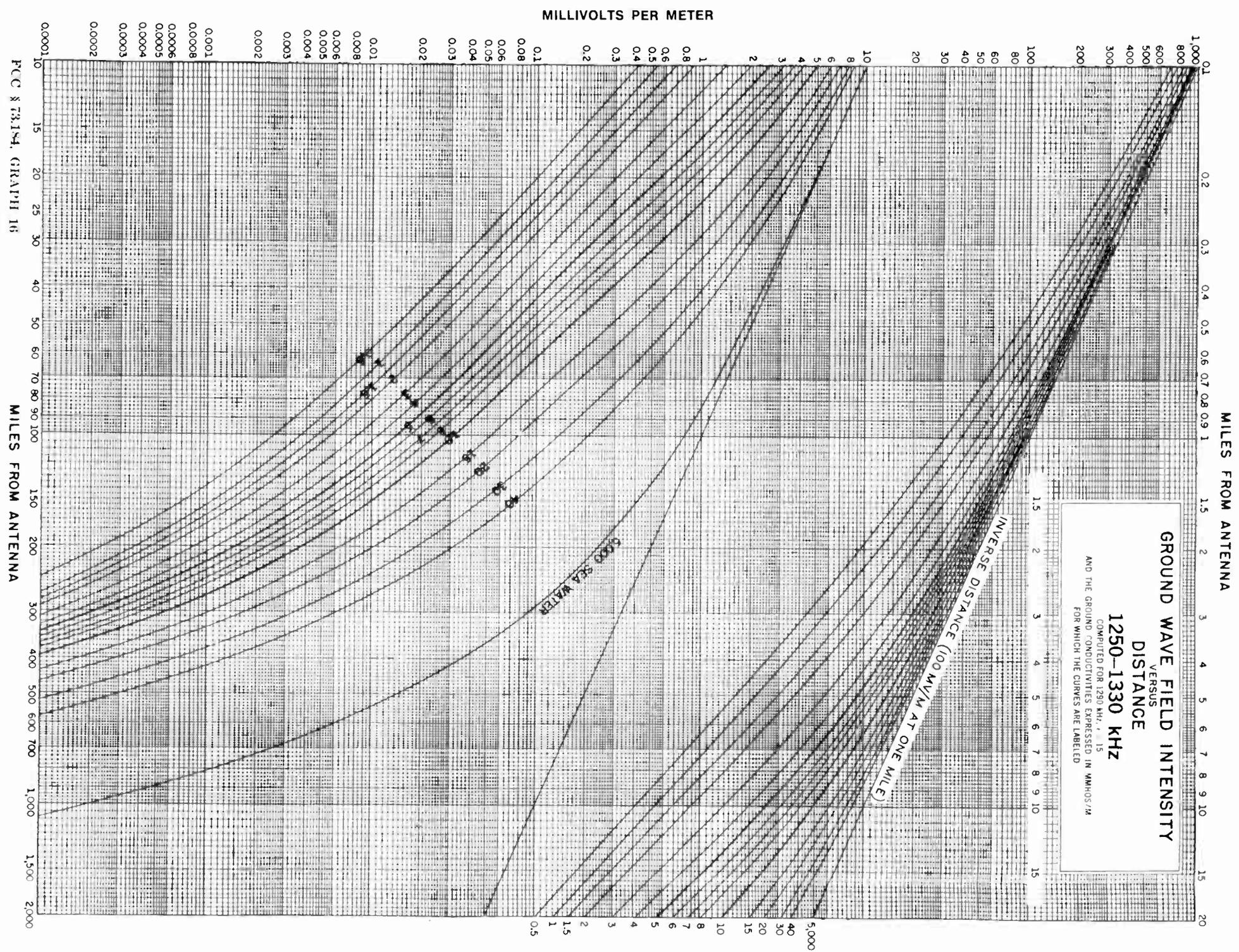


MILES FROM ANTENNA

GROUND WAVE FIELD INTENSITY  
VERSUS  
DISTANCE  
1180-1240 kHz  
COMPUTED FOR 1210 kHz, 15  
AND THE GROUND CONDUCTIVITIES EXPRESSED IN MMHOS/M  
FOR WHICH THE CURVES ARE LABELED





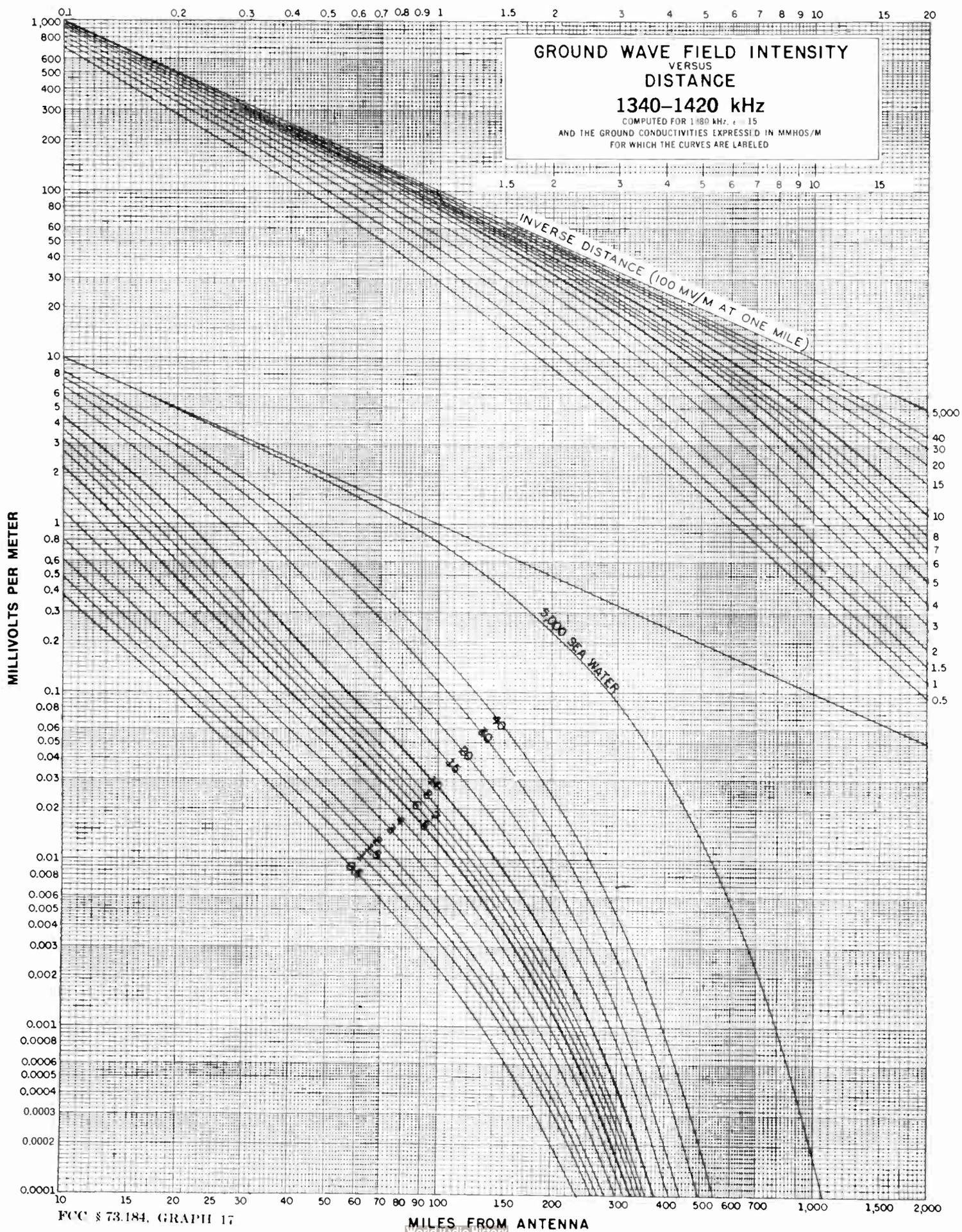


FCC § 73.154, GRAPH 16

MILES FROM ANTENNA



MILES FROM ANTENNA





MILES FROM ANTENNA

**GROUND WAVE FIELD INTENSITY  
VERSUS  
DISTANCE**

**1430--1510 kHz**

COMPUTED FOR  $f = 1470$  kHz,  $k = 1.5$   
AND THE GROUND CONDUCTIVITIES EXPRESSED IN MMHOS/M  
FOR WHICH THE CURVES ARE LABELED

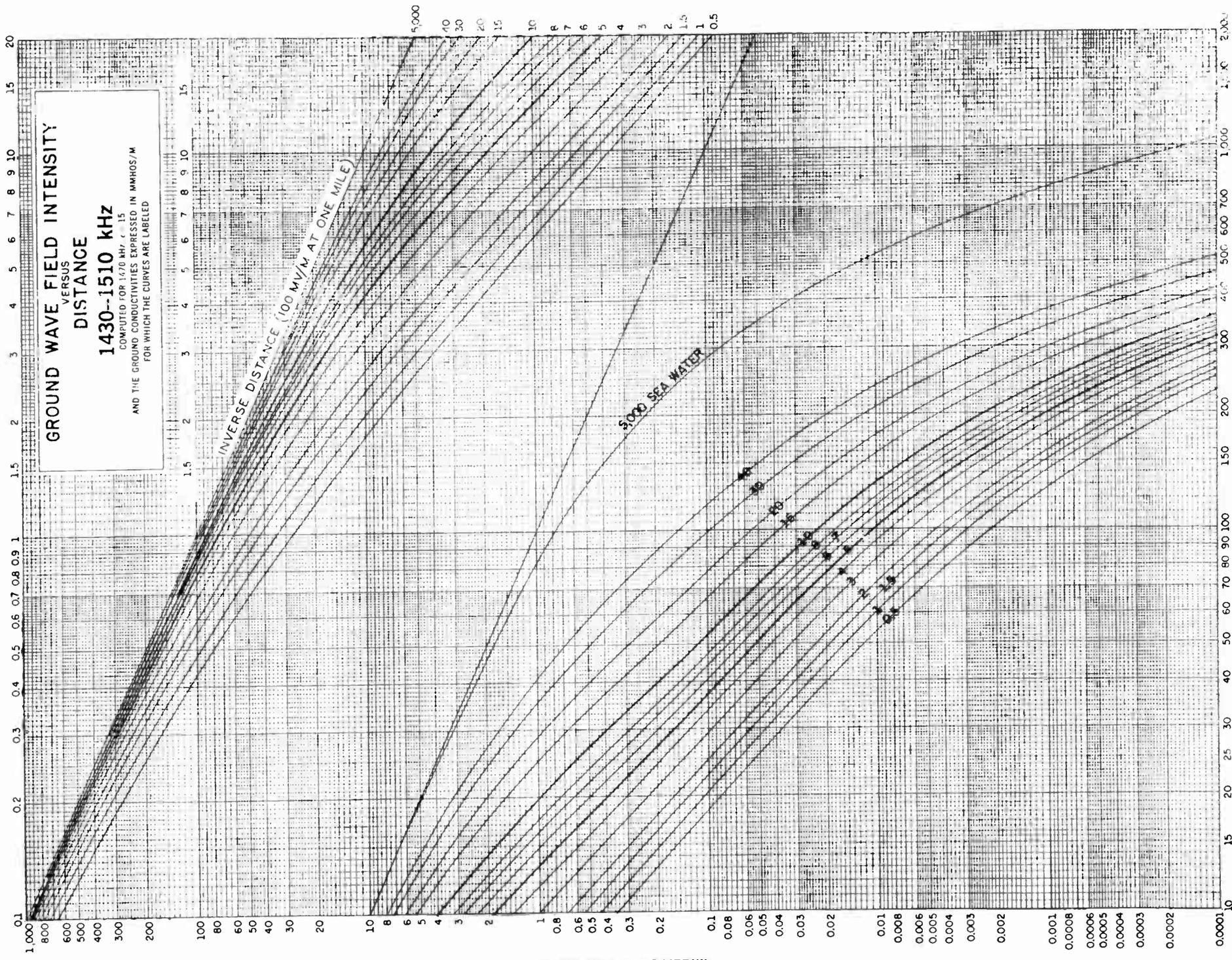
MILES FROM ANTENNA

INVERSE DISTANCE (100 MV/M AT ONE MILE)

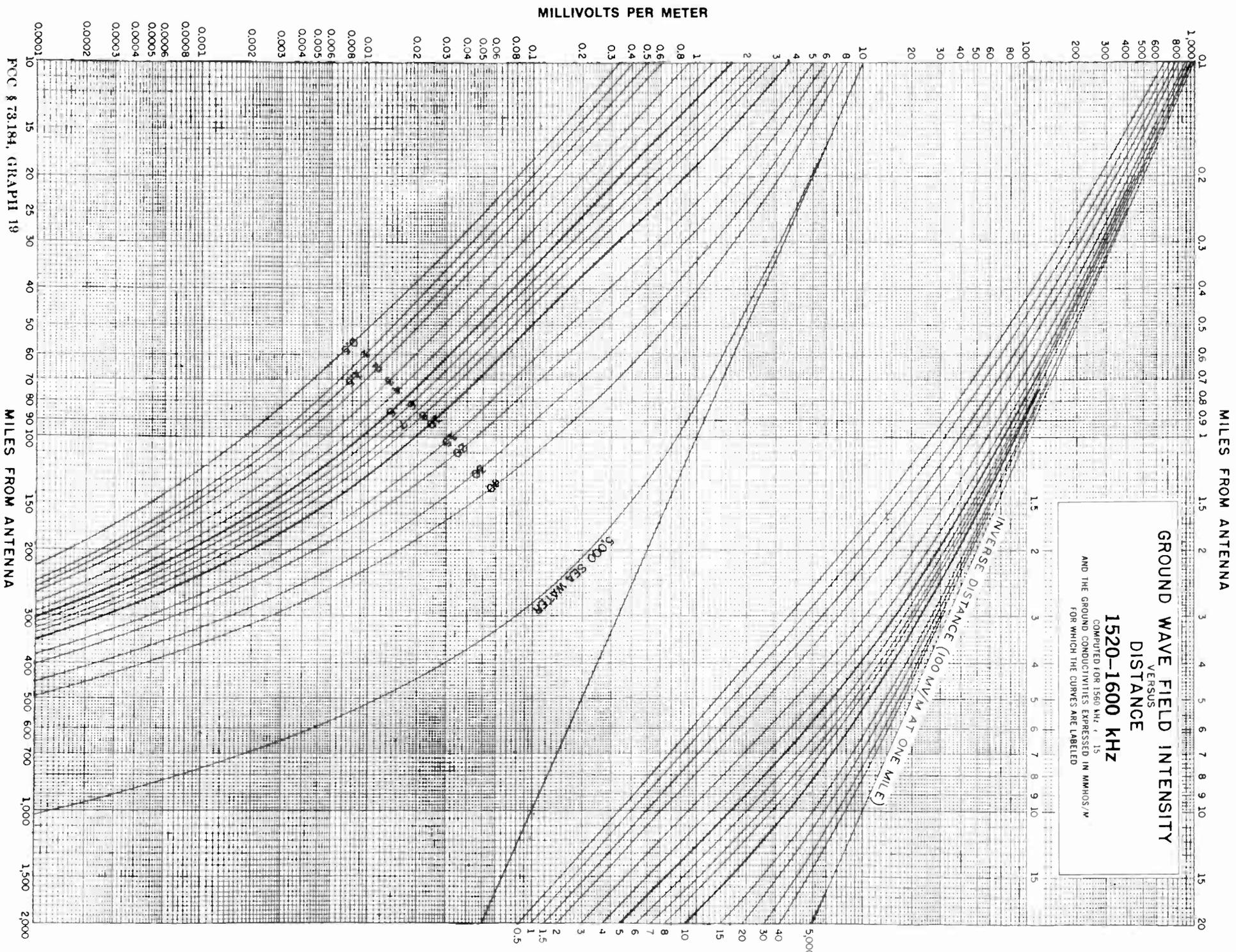
MILLIVOLTS PER METER

MILES FROM ANTENNA

FCC § 73.184, GRAPH 18













# GROUND WAVE FIELD INTENSITY VERSUS NUMERICAL DISTANCE OVER A PLANE EARTH

$$p = \frac{\pi R \cos^2 b'}{\lambda \cos b'} \approx \frac{\pi R \cos b}{\lambda} \quad \left. \begin{array}{l} \text{Vertical Polarization.} \\ b = 2b' - b' \approx \tan^{-1} \frac{\epsilon + 1}{\epsilon} \end{array} \right\}$$

$$p = \frac{\pi R}{\lambda} \frac{x}{\cos b'} \quad \left. \begin{array}{l} \text{Horizontal Polarization.} \\ b = 180^\circ - b' \end{array} \right\}$$

$$x = \frac{1.79731 \cdot 10^5 \sigma_{\text{e.m.u.}}}{f \text{ MHz}}$$

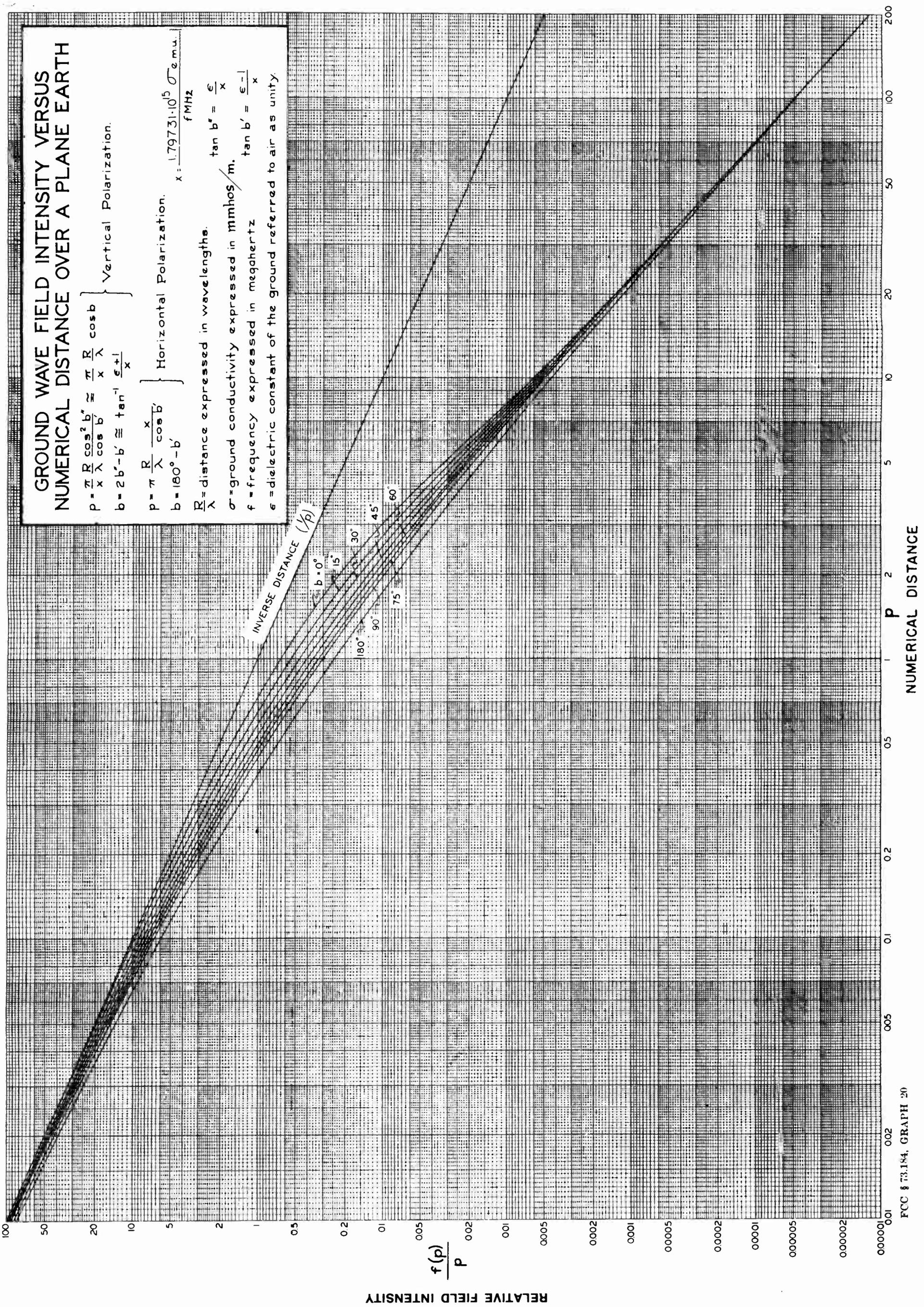
$\frac{R}{\lambda}$  = distance expressed in wavelengths.

$$\tan b' = \frac{\epsilon}{x}$$

$\sigma$  = ground conductivity expressed in mmhos/m.

$$f = \text{frequency expressed in megahertz}$$

$\epsilon$  = dielectric constant of the ground referred to air as unity.





Air mass type	k	
	Summer	Winter
Tropical Gulf—T <sub>1</sub> .....	1.53	1.43
Polar Continental—P <sub>1</sub> .....	1.31	1.25
Superior—S.....	1.25	1.25
Average.....	1.33	

It is clear from this table that the use of the average value of  $k=4/3$  is justified in obtaining a single correction for the systematic effects of atmospheric refraction.

(d) Provided the value of the dielectric constant is near 15, the curves of Graphs 1 to 19A may be compared with experimental data to determine the appropriate values of the ground conductivity and of the inverse distance field intensity at 1 mile. This is accomplished simply by plotting the measured fields on transparent log-log graph paper similar to that used for Graphs 1 to 19A and superimposing this chart over the graph corresponding to the frequency involved. The log-log graph sheet is then shifted vertically until the best fit is obtained with one of the curves on the graph; the intersection of the inverse distance line on the graph with the 1-mile abscissa on the chart determines the inverse distance field strength at 1 mile. For other values of dielectric constant, the following procedure may be used for a determination of the dielectric constant of the ground, conductivity of the ground and the inverse distance field intensity at 1 mile. Graph 20 gives the relative values of groundwave field strength over a plane earth as a function of the numerical distance

$p$  and phase angle  $b$ . On graph paper with coordinates similar to those of Graph 20, plot the measured values of field strength as ordinates versus the corresponding distances from the antenna expressed in miles as abscissae. The data should be plotted only for distances greater than one wavelength (or, when this is greater, five times the vertical height of the antenna in the case of a single element, i.e., non-directional antenna or 10 times the spacing between the elements of a directional antenna) and for distances less than  $50/f_{\text{MHz}} \frac{1}{3}$  miles (i.e., 50 miles at 1 MHz). Then, using a light box, place the sheet with the data plotted on it over the sheet with the curves of Graph 20 and shift the data sheet vertically and horizontally (making sure that the vertical lines on both sheets are parallel) until the best fit with the data is obtained with one of the curves on Graph 20. When the two sheets are properly lined up, the values of the field strength corresponding to the intersection of the inverse distance line of Graph 20 with the 1 mile abscissa on the data sheet is the inverse distance field strength at 1 mile, and the values of the numerical distance at 1 mile,  $p_1$ , and of  $b$  are also determined. Knowing the values of  $b$  and  $p_1$  (the numerical distance at 1 mile), we may substitute in the following approximate formulas to determine the appropriate values of the ground conductivity and dielectric constant.

$$x \cong \frac{\pi}{p} \cdot (R/\lambda)_1 \cdot \cos b \tag{1}$$

$(R/\lambda)_1$  = Number of wavelengths in 1 mile.

$$\sigma \text{ m. u.} = \frac{xf_{\text{MHz}} \cdot 10^{-14}}{17.9731} \tag{2}$$

$\sigma \text{ m. u.}$  = Conductivity of the ground expressed in electromagnetic units.  
 $f_{\text{MHz}}$  = frequency expressed in megahertz.

$$\epsilon \cong x \tan b - 1 \tag{3}$$

$\epsilon$  = dielectric constant of the ground referred to air as unity.

First solve for  $\sigma$  by substituting the known values of  $p_1$ ,  $(R/\lambda)_1$ , and  $\cos b$  in equation (1). Equation (2) may then be solved for  $\sigma$  and equation (3) for  $\epsilon$ . At distances greater than  $50/f_{MHz}^{1/2}$  miles the curves of Graph 20 do not give the correct relative values of field strength since the curvature of the earth weakens the field more rapidly than these plane earth curves would indicate. Thus, no attempt should be made to fit experimental data to these curves at the larger distances.

(e) At sufficiently short distances (say less than 35 miles at broadcast frequencies), such that the curvature of the earth does not introduce an additional attenuation of the waves, the curves of Graph 20 may be used for determining the groundwave field strength for transmitting and receiving antennas at the surface of the earth for any radiated power, frequency, or set of ground constants in the following manner: First, lay off the straight inverse distance line corresponding to the power radiated on transparent log-log graph paper similar to that of Graph 20, labelling the ordinates of the chart in terms of field strength, and the abscissae in terms of distance. Next, by means of the formulas given on Graph 20, calculate the value of the numerical distance,  $p$ , at 1 mile, and the value of  $b$ . Then superimpose the log-log chart over Graph 20, shifting it vertically until the inverse distance lines on both charts coincide and shifting it horizontally until the numerical distance at 1 mile on Graph 20 coincides with 1 mile on the log-log graph paper. The curve of Graph 20 corresponding to the calculated value

of  $b$  is then traced on the log-log graph paper giving the field strength versus distance in miles.

(f) This paragraph consists of Graphs 1 to 19, 19A, and 20, and a "slider for use with graphs."

#### § 73.185 Computation of interference and overlap.

(a) Measured values of radiation are not to be used in calculating overlap, interference, and coverage.

(1) In the case of an antenna which is intended to be non-directional in the horizontal plane, an ideal non-directional radiation pattern shall be used in determining interference, overlap, and coverage, even if the antenna is not actually non-directional.

(2) In the case of an antenna which is directional in the horizontal plane, the radiation which shall be used in determining interference, overlap, and coverage is that calculated pursuant to § 73.150 or § 73.152, depending on whether the station has a standard or modified standard pattern.

(3) In the case of calculation of interference or overlap to (not from) a foreign station, the notified radiation shall be used, even if the notified radiation differs from that in paragraphs (a) (1) or (2) of this section.

(b) For signals from stations operating on clear channels, skywave interference shall be determined from Figures 1a and 6a of § 73.190.

(c) For signals from stations operating on regional and local channels, skywave interference is determined from Figure 2 and 6a of § 73.190. (Certain simplifying assumptions may be made in the case of Class IV stations on local channels. See note to § 73.182(a)(4).)

(d) Figure 6a of § 73.190, entitled "Angles of Departure vs. Transmission Range" is to be used in de-



termining the angles in the vertical pattern of the antenna of an interfering station to be considered as pertinent to transmission by one reflection. To provide for variation in the pertinent vertical angle due to variations of ionosphere height and ionosphere scattering, the curves 4 and 5 indicate the upper and lower angles within which the radiated field is to be considered. The maximum value of field strength occurring between these angles shall be used to determine the multiplying factor to apply to the 10% skywave field intensity value read from Figure 1a or Figure 2 of § 73.190. The multiplying factor is found by dividing the maximum radiation between the pertinent angles by 100 mV/m. (Curves 2 and 3 are considered to represent the variation due to the variation of the effective height of the E-layer while Curves 4 and 5 extend the range of pertinent angles to include a factor which allows for scattering. The dotted lines are included for information only.)

(e) Example of the use of skywave curves for stations operating on clear channels: Assume a Class II station with which interference may be expected is located at a distance of 450 miles from a proposed Class II station. The critical angles of radiation as determined from Figure 6a of § 73.190 are  $9.6^\circ$  and  $16.3^\circ$ . If the vertical pattern of the antenna of the proposed station, in the direction of the other station, is such that between the angles of  $9.6^\circ$  and  $16.3^\circ$  above the horizon the maximum radiation is 160 mV/m at one mile, the value of the 10% field, as read from Figure 1a of § 73.190, is multiplied by 1.6 to determine the interfering field strength at the location in question.

(f) For stations operating on regional and local channels, interfering skywave field strengths shall be determined in accordance with the procedure specified in (d) of this section and illustrated in (e) of this section, except that Figure 2 of § 73.190 is used in place of Figure 1a of § 73.190. In using Figure 2 of § 73.190, one additional parameter must be considered, i.e., the variation of received field with the latitude of the path.

(g) Figure 2 of § 73.190, "10% Skywave Signal Range Chart", shows the signal as a function of the latitude of the transmission path, which is defined as the geographic latitude of the mid-point between the transmitter and receiver. When using Figure 2 of § 73.190, latitude  $35^\circ$  should be used in case the mid-point of the path lies below  $35^\circ$  North and latitude  $50^\circ$  should be used in case the mid-point of the path lies above  $50^\circ$  North.

(h) In the case of an antenna which is intended to be non-directional in the horizontal plane, the vertical distribution of the relative fields should be computed pursuant to § 73.160. In the case of an antenna which is directional in the horizontal plane, the vertical pattern in the great circle direction towards the point of reception in question must first be calculated. In cases where the radiation in the vertical plane, in the pertinent azimuth, contains a large lobe at a higher angle than the pertinent angle for one reflection, the method of calculating interference will not be restricted to that just described, but each such case will be considered on the basis of the best knowledge available.

(i) Example of the use of skywave curves for stations operating on regional and local channels: It is

desired to determine the amount of interference to a Class III station at Portland, Oregon, caused by another Class III station at Los Angeles, California. The Los Angeles station is radiating a signal of 500 mV/m at one mile, in the horizontal plane, in the great circle direction of Portland, using a 0.5 wavelength antenna. The distance is 825 miles. From Figure 6a of § 73.190, the upper and lower pertinent angles are 7° and 3.5° and, from Figure 5 of § 73.190, the maximum radiation within these angles is 99% of the horizontal radiation or 554 mV/m at one mile. The mid-point latitude of the transmission path is 39.8° N and, from Figure 2 of § 73.190, the 10% skywave field at 825 miles is 0.050 mV/m for 100 mV/m radiated. Multiplying by 554/100 to adjust this value to the actual radiation gives 0.277 mV/m as to the interfering signal strength. At 20 to 1 ratio, the limitation to the Portland station is to the 5.5 mV/m contour.

(j) When the distance is large, more than one reflection may be involved and due consideration must be given each appropriate vector in the vertical pattern, as well as the constants of the earth where reflection takes place between the transmitting station and the service area to which interference may be caused.

**NOTE:** In applying the provisions of this section to applications tendered on or before September 29, 1965, for new or changed facilities on the clear channels listed in § 73.25 (b), Figure 1 of § 73.190, entitled "Average Skywave Field Strength", shall be used instead of Figure 1a, and Figure 6 of § 73.190, entitled "Variation with Distance of Two Im-

portant Parameters in the Theory of Skywave Propagation" shall be used instead of Figure 6a. In determining skywave interference from an antenna with a vertical pattern different from that on which Figure 1 of § 73.190 is predicated, it is necessary to compare the appropriate vectors in the vertical plane. The skywave curves shown in Figure 1 of § 73.190 are based on antenna systems having height of 0.311 wavelength (112°) and producing a vertical pattern as shown in Figure 5 of § 73.190. A non-directional antenna system, as well as a directional antenna system having vertical patterns other than essentially the same as shown, must be converted to the pattern of a 0.311 wavelength antenna having the same field strength at the critical angle as does the pattern of the antenna involved.

【§ 73.185 headnote, (a) and (h) revised eff. 3-17-81; III(80)-1】

§ 73.186 Establishment of effective field at one mile.

(a) Section 73.45 provides that certain minimum field strengths are acceptable in lieu of the required minimum physical heights of the antennas proper. Also, in other situations, it may be necessary to determine the effective field. The following requirements shall govern the taking and submission of data on the field strength produced:

(1) Beginning as near to the antenna as possible without including the induction field and to provide for the fact that a broadcast antenna is not a point source of radiation (not less than one wave length or 5 times the vertical height in the case of a single element, i.e., nondirectional antenna or 10 times the spacing between the elements of a directional antenna), measurements shall be made on eight or more



radials, at intervals of approximately one-tenth mile up to 2 miles from the antenna, at intervals of approximately one-half mile from 2 miles to 6 miles from the antenna, at intervals of approximately 2 miles from 6 miles to 15 or 20 miles from the antenna, and a few additional measurements if needed at greater distances from the antenna. Where the antenna is rurally located and unobstructed measurements can be made, these shall be as many as 18 or 20 measurements on each radial. However, where the antenna is located in a city where unobstructed measurements are difficult to make, measurements shall be made on each radial at as many unobstructed locations as possible, even though the intervals are considerably less than stated above, particularly within 2 miles of the antenna. In cases where it is not possible to obtain accurate measurements at the closer distances (even out to 5 or 6 miles due to the character of the intervening terrain), the measurements at greater distances should be made at closer intervals. (It is suggested that "wave tilt" measurements may be made to determine and compare locations for taking field strength measurements, particularly to determine that there are no abrupt changes in ground conductivity or that reflected waves are not causing abnormal field strengths.)

(2) The data required by subparagraph (1) of this paragraph should be plotted for each radial in accordance with either of the two methods set forth below:

(i) Using log-log coordinate paper, plot field strengths as ordinate and distance as abscissa.

(ii) Using semi-log coordinate paper, plot field strength times distance as ordinate on the log scale and distance as abscissa on the linear scale.

(3) However, regardless of which of the methods in subparagraph (2) of this paragraph is employed, the proper curve to be drawn through the points plotted shall be determined by comparison with the curves in § 73.184 as follows: Place the sheet on which the actual points have been plotted over the appropriate Graph in § 73.184, hold to the light if necessary and adjust until the curve most closely matching the points is found. This curve should then be drawn on the sheet on which the points were plotted, together with the inverse distance curve corresponding to that curve. The field at 1 mile for the radial concerned shall be the ordinate on the inverse distance curve at 1 mile.

(4) When all radials have been analyzed in accordance with subparagraph (3) of this paragraph, a curve shall be plotted on polar coordinate paper from the fields obtained, which gives the inverse distance field pattern at 1 mile. The radius of a circle, the area of which is equal to the area bounded by this pattern, is the effective field. (See § 73.14.)

(5) In analyzing the results of a partial proof of performance as defined in § 73.154 when the data are insufficient for independent graphical analysis, either of two analysis methods may be used. In such cases, either the arithmetic average or logarithmic average of the ratios of field strength at each measurement

point along each radial to the corresponding field strength in the latest complete proof of performance may be utilized to establish the inverse distance fields. (The logarithmic average for each radial is the anti-logarithm of the mean of the logarithms of the ratios of field strength (new to old) for each measurement location along a given radial.)

(6) The antenna power of the station shall be maintained at the authorized level during all field strength measurements. The power determination requires a knowledge of the antenna or common point resistance which must be accurately measured in accordance with § 73.54, and the current, measured with an ammeter of acceptable accuracy (see §§ 73.58 and 73.1215).

(b) Complete data taken in conjunction with the field intensity measurements shall be submitted to the Commission in affidavit form including the following:

(1) Tabulation by number of each point of measurement to agree with the map required in (2) below, the date and time of each measurement, the field strength (E), the distance from the antenna (D) and the product of the field strength and distance (ED) (if data for each radial are plotted on semilogarithmic paper, see above) for each point of measurement.

(2) Map showing each point of measurement numbered to agree with tabulation required above.

(3) Description of method used to take field strength measurements.

(4) The family of theoretical curves used in determining the curve for each radial properly identified by conductivity and dielectric constants.

(5) The curves drawn for each radial and the field strength pattern.

(6) Antenna resistance measurement:

(i) Antenna resistance at operating frequency.

(ii) Description of method employed.

(iii) Tabulation of complete data.

(iv) Curve showing antenna resistance versus frequency.

(7) Antenna current or currents maintained during field strength measurements.

(8) Description, accuracy, date, and by whom each instrument was last calibrated.

(9) Name, address, and qualifications of the engineer making the measurements.

(10) Any other pertinent information.

**[§ 73.186 headnote and (a) revised eff. 3-17-81; III(80)-1]**

#### § 73.187 Limitation on daytime radiation.

(a) (1) Except as otherwise provided in paragraphs (2) and (3) of this paragraph, no authorization will be granted for Class II facilities if the proposed facilities would radiate during the period of critical hours (the 2 hours after local sunrise and the 2 hours before local sunset) toward any point on the 0.1 mV/m contour of a co-channel U.S. Class I station, at or below the pertinent vertical angle determined from Curve 4

of Figure 6a of § 73.190, values in excess of those obtained as provided in paragraph (b) of this section.

(2) The limitation set forth in subparagraph (1) of this paragraph shall not apply in the following cases:

(i) Any Class II facilities authorized before November 30, 1959; or

(ii) For Class II stations authorized before November 30, 1959, subsequent changes of facilities which do not involve a change in frequency, an increase in radiation toward any point on the 0.1 mV/m contour of a co-channel U.S. Class I station, or the move of transmitter site materially closer to the 0.1 mV/m contour of such Class I stations.

(3) If a Class II station authorized before November 30, 1959, is authorized to increase its daytime radiation in any direction toward the 0.1 mV/m contour of a co-channel U.S. Class I station (without a change in frequency or a move of transmitter site materially closer to such contour), it may not, during the two hours after local sunrise or the two hours before local sunset, radiate in such directions a value exceeding the higher of:

(i) The value radiated in such directions with facilities last authorized before November 30, 1959, or

(ii) The limitation specified in subparagraph (1) of this paragraph.

(b) To obtain the maximum permissible radiation for a Class II station on a given frequency ( $f_{kHz}$ ) from 640 kHz through 990 kHz, multiply the radiation value obtained for the given distance and azimuth from the 500 kHz chart (Figure 9 of § 73.190) by the appropriate interpolation factor shown in the  $K_{500}$  column of paragraph (c) of this section; and multiply the radiation value obtained for the given distance and azimuth from the 1000 kHz chart (Figure 10 of § 73.190) by the appropriate interpolation factor shown in the  $K_{1000}$  column of paragraph (b) of this Section. Add the two products thus obtained; the result is the maximum radiation value applicable to the Class II station in the pertinent directions. For frequencies from 1010 kHz to 1580 kHz, obtain in a similar manner the proper radiation values from the 1000 kHz and 1600 kHz charts (Figures 10 and 11 of § 73.190). multiply each of these values by the appropriate interpolation factor in the  $K'_{1000}$  and  $K'_{1600}$  columns in paragraph (c) of this section, and add the products.

(c) Interpolation factors.

(1) A minimum field strength of 25 to 50 mV/m

$k_{kHz}$	$K_{500}$	$K_{1000}$
640.....	0.720	0.280
650.....	0.700	0.300
660.....	0.680	0.320
670.....	0.660	0.340
680.....	0.640	0.360
690.....	0.620	0.380
700.....	0.600	0.400
710.....	0.580	0.420
720.....	0.560	0.440
730.....	0.540	0.460
740.....	0.520	0.480
750.....	0.500	0.500
760.....	0.480	0.520
770.....	0.460	0.540

780.....	0.440	0.560
800.....	0.400	0.600
810.....	0.380	0.620
820.....	0.360	0.640
830.....	0.340	0.660
840.....	0.320	0.680
850.....	0.300	0.700
860.....	0.280	0.720
870.....	0.260	0.740
880.....	0.240	0.760
890.....	0.220	0.780
900.....	0.200	0.800
940.....	0.120	0.880
990.....	0.020	0.980

(2) Frequencies above 1000 kHz.

$kHz$	$K'_{1000}$	$K'_{1600}$
1010.....	0.983	0.017
1020.....	0.967	0.033
1030.....	0.950	0.050
1040.....	0.933	0.067
1050.....	0.917	0.083
1060.....	0.900	0.100
1070.....	0.883	0.117
1080.....	0.867	0.133
1090.....	0.850	0.150
1100.....	0.833	0.167
1110.....	0.817	0.183
1120.....	0.800	0.200
1130.....	0.783	0.217
1140.....	0.767	0.233
1160.....	0.733	0.267
1170.....	0.717	0.283
1180.....	0.700	0.300
1190.....	0.683	0.317
1200.....	0.667	0.333
1210.....	0.650	0.350
1220.....	0.633	0.367
1500.....	0.167	0.833
1510.....	0.150	0.850
1520.....	0.133	0.867
1530.....	0.117	0.883
1540.....	0.100	0.900
1550.....	0.083	0.917
1560.....	0.067	0.933
1570.....	0.050	0.950
1580.....	0.033	0.967

§ 73.188 Location of transmitters.

(a) The four primary objectives to be obtained in the selection of a site for a transmitter of a broadcast station are as follows:

(1) To serve adequately the center of population in which the studio is located and to give maximum coverage to adjacent areas.

(2) To cause and experience minimum interference to and from other stations.

(3) To present a minimum hazard to air navigation consistent with objectives (1) and (2).

(4) To fulfill certain other requirements given in the following paragraphs of this section.

(b) The site selected should meet the following conditions:

(1) A minimum field strength of 25 to 50 mV/m will be obtained over the business or factory areas of the city.

(2) A minimum field strength of 5 to 10 mV/m will be obtained over the most distant residential section.

(3) The absorption of the signal is the minimum for any obtainable sites in the area. As a guide in this respect the absorption of the signals from other stations in that area should be followed, as well as the results of tests on other sites.

(4) The population within the blanket contour does not exceed that specified by § 73.24(g).

(c) In selecting a site in the center of a city it is usually necessary to place the radiating system on the top of a building. This building should be large enough to permit the installation of a satisfactory ground and/or counterpoise system. Great care must be taken to avoid selecting a building surrounded by taller buildings or where any nearby building higher than the antenna is located in the direction which it is desired to serve. Such a building will tend to cast "radio shadows" which may materially reduce the coverage of the station in that direction. Irrespective of the height of surrounding buildings, the building on which the antenna is located should not have height of approximately one-quarter wavelength. A study of antenna systems located on buildings tends to indicate that where the building is approximately a quarter wavelength in height, the efficiency of radiation may be materially reduced.

(d) Particular attention must be given to avoiding cross-modulation. In this connection, attention is invited to the fact that it has been found very unsatisfactory to locate broadcast stations so that high signal strengths occur in areas with overhead electric power or telephone distribution systems and sections where the wiring and plumbing are old or improperly installed. These areas are usually found in the older sections of a city. These conditions give rise to cross-modulation interference due to the nonlinear conductivity characteristics of contacts between wiring, plumbing, or other conductors. This type of interference is independent of the selectivity characteristics of the receiver and normally can be eliminated only by correction of the condition causing the interference. Cross-modulation tends to increase with frequency and in some areas it has been found impossible to eliminate all sources of cross-modulation, resulting in an unsatisfactory condition for both licensee and listeners. The Commission will not authorize (1) new stations, (2) a major change of facilities of existing stations, (3) a change in transmitter location of an existing station, or (4) auxiliary transmitters, for use with other than the authorized antenna system of the main transmitter, if such new stations, physical facilities of existing stations after a major change, transmitters or auxiliary transmitters would be located in such areas or would utilize a roof-top antenna and the operating power would be in excess of 1000 watts.

(e) If it is determined that a site should be selected removed from the city, there are several general conditions to be followed in determining the exact site. Three maps should be given consideration if available:

- (1) Map of the density of population and number of people by sections in the area.
- (2) Geographical contour map with contour intervals of 20 to 50 feet.
- (3) Map showing the type, nature and depth of the soil in the area with special reference to the condition of the moisture throughout the year.

From these maps a site should be selected with a minimum number of intervening hills between it and the

center of the city. In general, because of ground conditions, it is better to select a site in a low area rather than on top of a hill, and the only condition under which a site on top of a hill should be selected is that it is only possible by this means to avoid a substantial number of hills, between the site and the center of a city, with the resulting radio shadows. If a site is to be selected to serve a city which is on a general sloping area, it is generally better to select a site below the city than above the city.

(f) If a compromise must be made between probable radio shadows from intervening hills and locating the transmitter on top of a hill, it is generally better to compromise in favor of the low area, where an efficient radiating system may be installed which will more than compensate for losses due to shadows being caused by the hills, if not too numerous or too high. Several transmitters have been located on tops of hills, but so far as data has been supplied not a single installation has given superior efficiency of propagation and coverage.

(g) The ideal location of a broadcast transmitter is in a low area of marshy or "crawfishy" soil or area which is damp the maximum percentage of time, and from which a clear view over the entire center of population may be had and the tall buildings in the business section of the city would cast a shadow across the minimum residential area.

(h) The type and condition of the soil or earth immediately around a site is very important. Important, to an equal extent, is the soil or earth between the site and the principal area to be served. Sandy soil is considered the worst type, with glacial deposits and mineral-ore areas next. Alluvial, marshy areas and salt-water bogs have been found to have the least absorption of the signal. One is fortunate to have available such an area and, if not available, the next best condition must be selected.

(i) Figure M3 (See Note to § 73.183(c)) and Figure R3 of § 73.190 indicate effective conductivity values in the United States, and are to be used for determining the extent of broadcast station coverage when adequate field strength measurements over the path in question are not available. Since the values specified are only for general areas and since conductivity values over the particular paths may vary widely from those shown, caution must be exercised in using the maps for selection of a satisfactory transmitter site. Where the submission of field strength measurements is deemed necessary or advisable, the Commission, in its discretion, may require an applicant for new or changed broadcast facilities to submit such data in support of its application.

(j) In general, broadcast transmitters operating with approximately the same power can be grouped in the same approximate area and thereby reduce the interference between them. If the city is of irregular shape, it is often possible to take advantage of this in selecting a suitable location that will give a maximum coverage. The maps giving the density of population will be a key to this. The map giving the elevation by

contours will be a key to the obstructing hills between the site and city. The map of the soil conditions will assist in determining the efficiency of the radiating system that may be erected and the absorption of the signal encountered in the surrounding area.

(k) Another factor to be considered is the relation of the site to airports and airways. Procedures and standards with respect to the Commission's consideration of proposed antenna structures which will serve as a guide to persons intending to apply for radio station licenses are contained in Part 17 of this Chapter (Construction, Marking, and Lighting of Antenna Structures).

(l) In finally selecting the site, consideration must be given to the required space for erecting an efficient radiating system, including the ground or counterpoise. It is the general practice to use direct grounds consisting of a radial buried wire system. If the area is such that it is not possible to get such ground system in soil that remains moist throughout the year, it probably will be found better to erect a counterpoise. (Such a site should be selected only as a last resort.) It, like the antenna itself, must of course be designed properly for the operating frequency and other local conditions.

(m) It is sometimes necessary to make a field strength survey to determine that the site selected will be entirely satisfactory. There are several facts that cannot be determined by inspection that make a survey very desirable for all locations removed from the city. Often two or more sites may be selected that appear to be of equal promise. It is only by means of field strength surveys taken with a transmitter at the different sites or from measurements on the signal of nearby stations traversing the terrain involved that the most desirable site can be determined. There are many factors regarding site efficiency that cannot be determined by any other method. When making the final selection of a site, the need for a field strength survey to establish the exact conditions cannot be stressed too strongly. The selection of a proper site for an AM broadcast station is an important engineering problem and can only be done properly by an adequate engineering study.

**§ 73.189 Minimum antenna heights or field strength requirements.**

[§ 73.189 headnote amended eff. 7-2-79; III (76)-11]

(a) Section 73.45 requires that all applicants for new, additional or different broadcast facilities and all licensees requesting authority to move the transmitter of an existing station, shall specify a radiating system, the efficiency of which complies with the requirements of good engineering practice for the class and power of the station.

(b) The specifications deemed necessary to meet the requirements of the art are set out in detail below.

(1) The licensee of an AM broadcast station requesting a change in power, time of operation, frequency, or transmitter location must also request

authority to install a new antenna system or to make changes in the existing antenna system which will meet the minimum height requirements, or submit evidence that the present antenna system meets the minimum requirements with respect to field strength, before favorable consideration will be given thereto. (See § 73.186.) In the event it is proposed to make substantial changes in an existing antenna system, the changes shall be such as to meet the minimum height requirements or will be permitted subject to the submission of field strength measurements showing that it meets the minimum requirements with respect to effective field strength.

(2) These minimum actual physical vertical heights of antennas permitted to be installed are shown by curves A, B, and C of Figure 7 of § 73.190 as follows:

(i) Class IV stations, 150 feet or a minimum effective field strength of 150 mV/m for 1 kilowatt (75 mV/m for 250 watts). (This height applies to a Class IV station on a local channel only. In the case of a Class IV station assigned to a regional channel Curve A shall apply.)

(ii) Class II and III stations, a minimum effective field strength of 175 mV/m for 1 kilowatt.

(iii) Class I stations, a minimum effective field strength of 225 mV/m for 1 kilowatt.

(3) The heights given on the graph for the antenna apply regardless of whether the antenna is located on the ground or on a building. Except for the reduction of shadows, locating the antenna on a building does not necessarily increase the efficiency and where the height of the building is in the order of a quarter wave the efficiency may be materially reduced.

(4) To obtain the maximum efficiency of which any antenna is capable a good ground system must be employed (a counterpoise may be substituted under certain conditions).

(5) At the present development of the art, it is considered that where a vertical radiator is employed with its base on the ground, the ground system should consist of buried radial wires at least one-fourth wave length long. There should be as many of these radials evenly spaced as practicable and in no event less than 90. (120 radials of 0.35 to 0.4 of a wave length in length and spaced 3° is considered an excellent ground system and in case of high base voltage, a base screen of suitable dimensions should be employed.)

(6) It should be borne in mind that the above specifications are the minimums and where possible better antenna and ground systems should be installed.

(7) In case it is contended that the required antenna efficiency can be obtained with an antenna of height or ground system less than the minimum specified, a complete field strength survey must be supplied to the Commission showing that the field strength at a mile without absorption fulfills the minimum requirements. (See § 73.186.) This field survey must be made by a qualified engineer using equipment of acceptable accuracy.

(8) The main element or elements of a directional antenna system shall meet the above minimum requirements with respect to height or effective field strength. No directional antenna system will be approved which is so designed that the effective field of the array is less than the minimum prescribed for the class of station concerned, or in case of a Class I station less than 90 percent of the ground wave field which would be obtained from a perfect antenna of the height specified by Figure 7 of § 73.190 for operation on frequencies below 1000 kilohertz, and in the case of a Class II and III station less than 90 percent

of the ground wave field which would be obtained from a perfect antenna of the height specified by Figure 7 of § 73.190 for operation on frequencies below 750 kHz.

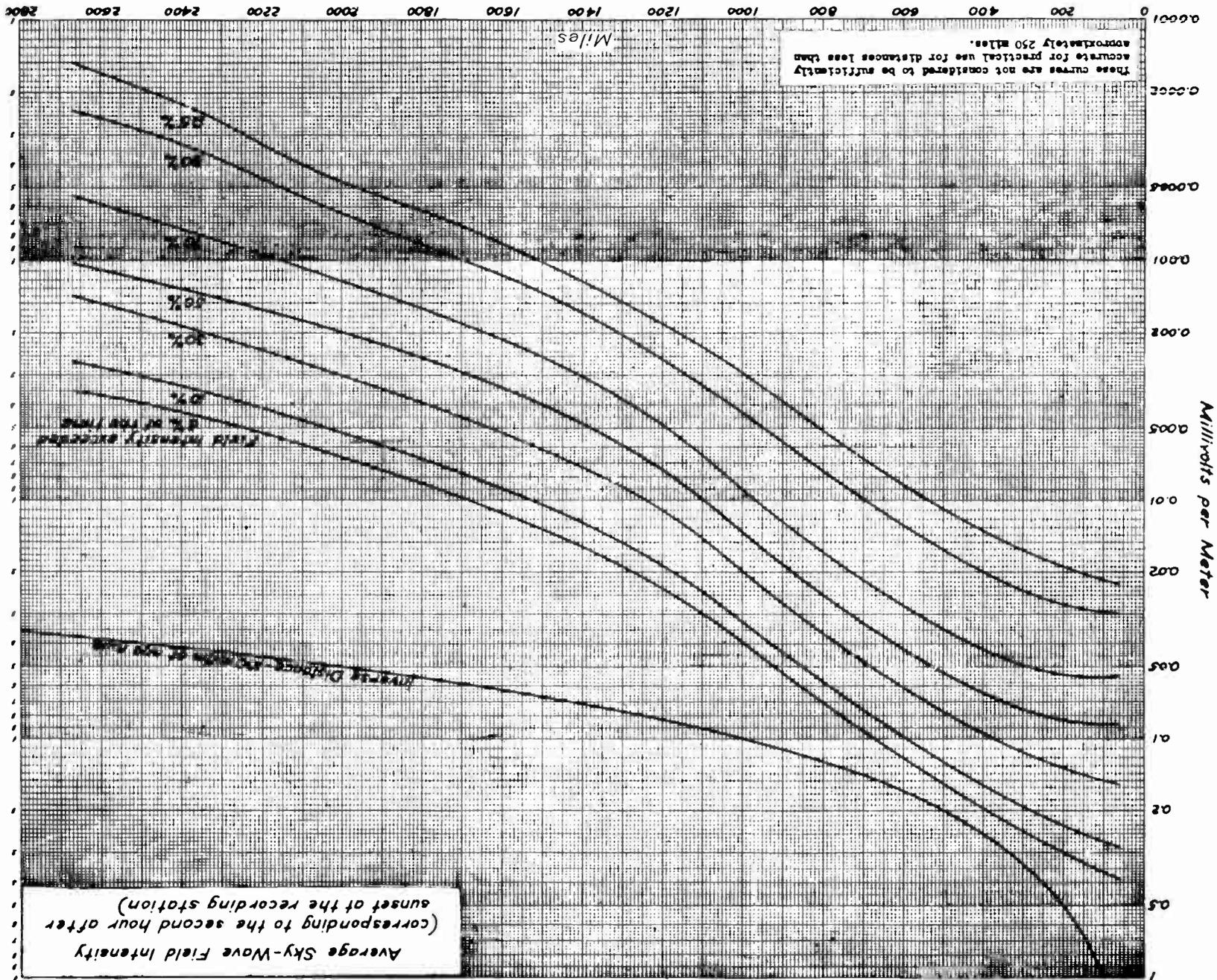
(9) See §§ 73.43 and 73.45 for additional information on AM station antenna systems and procedures for making antenna system modifications.

【§ 73.189(b)(9) revised eff. 4-30-80; III(80)-1】

§ 73.190 AM Engineering charts.

This section consists of the following figures: 1, 1a, 2, R3, 5, 6, 6a, 7, 8, 9, 10, 11 and 12.





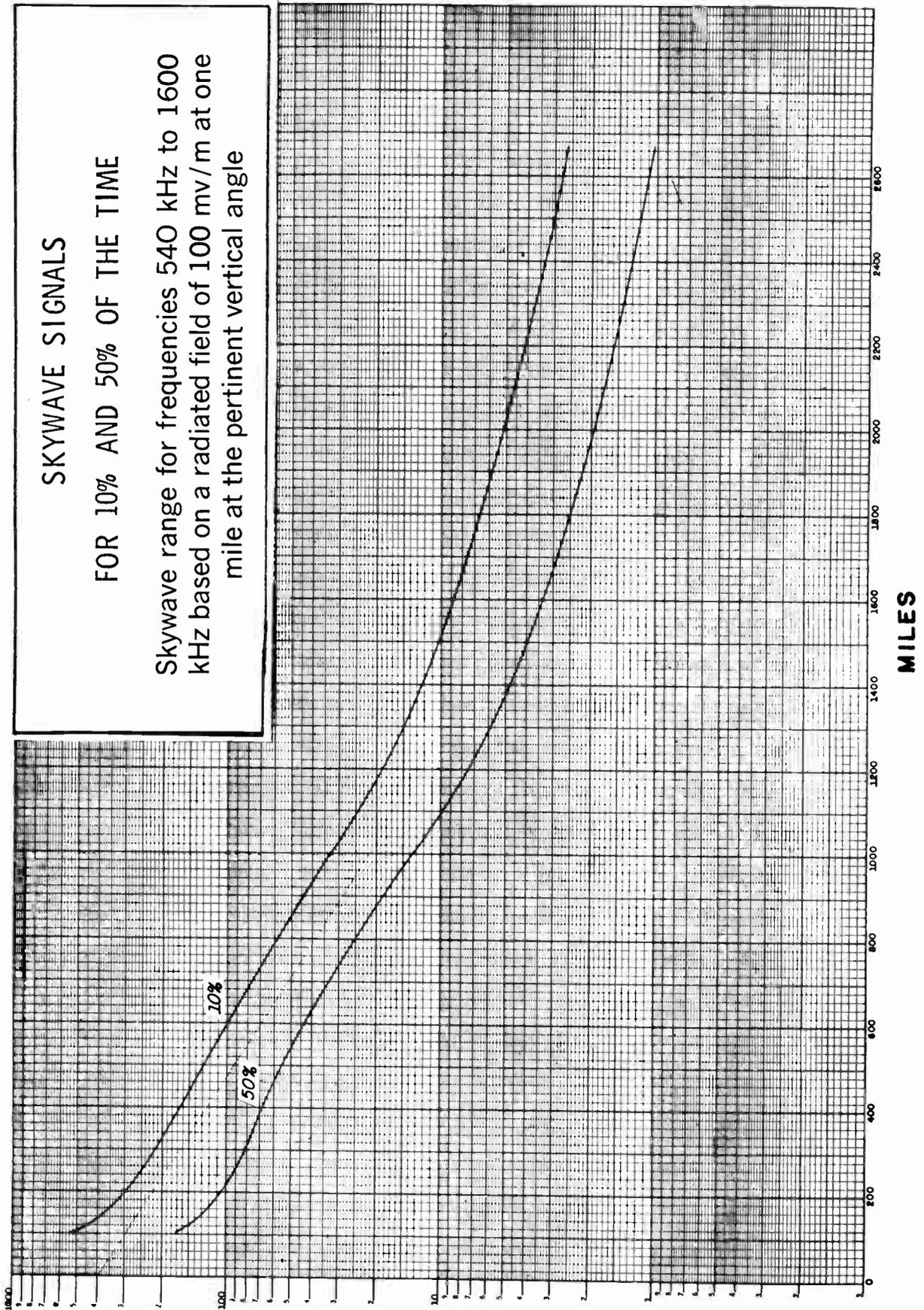
FCC § 73.190 FIGURE 1



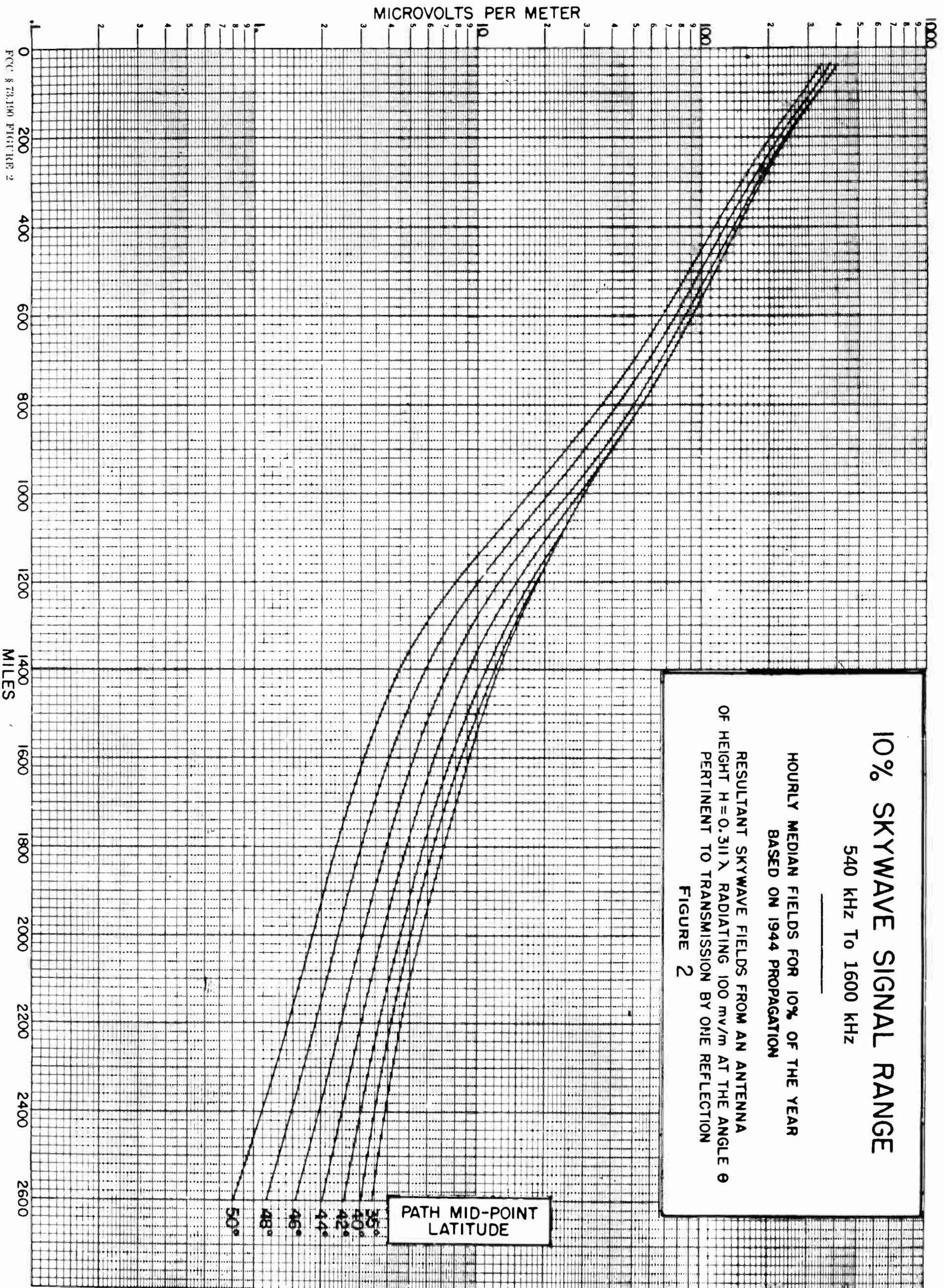
# SKYWAVE SIGNALS

## FOR 10% AND 50% OF THE TIME

Skywave range for frequencies 540 kHz to 1600 kHz based on a radiated field of 100 mv/m at one mile at the pertinent vertical angle



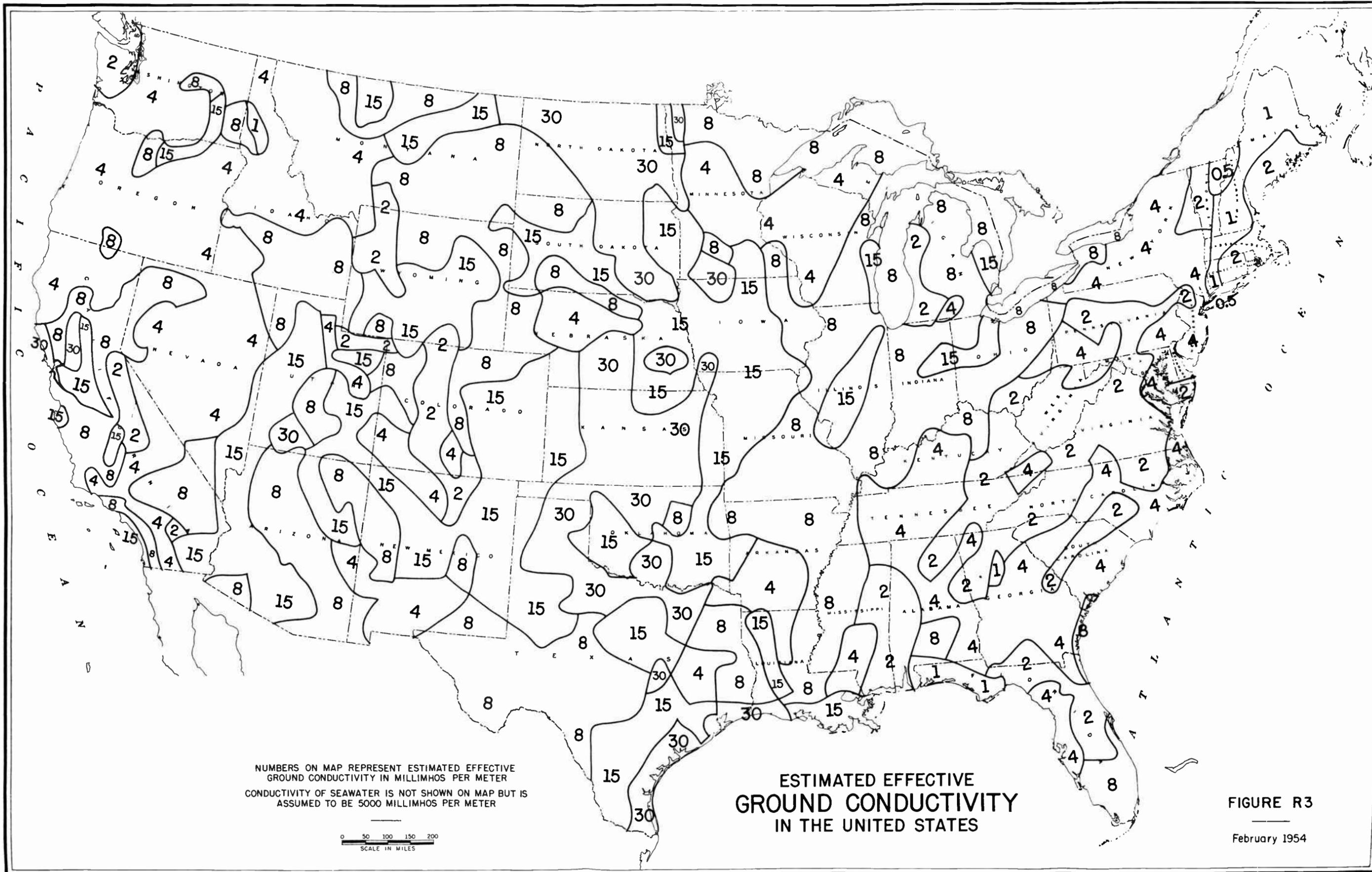




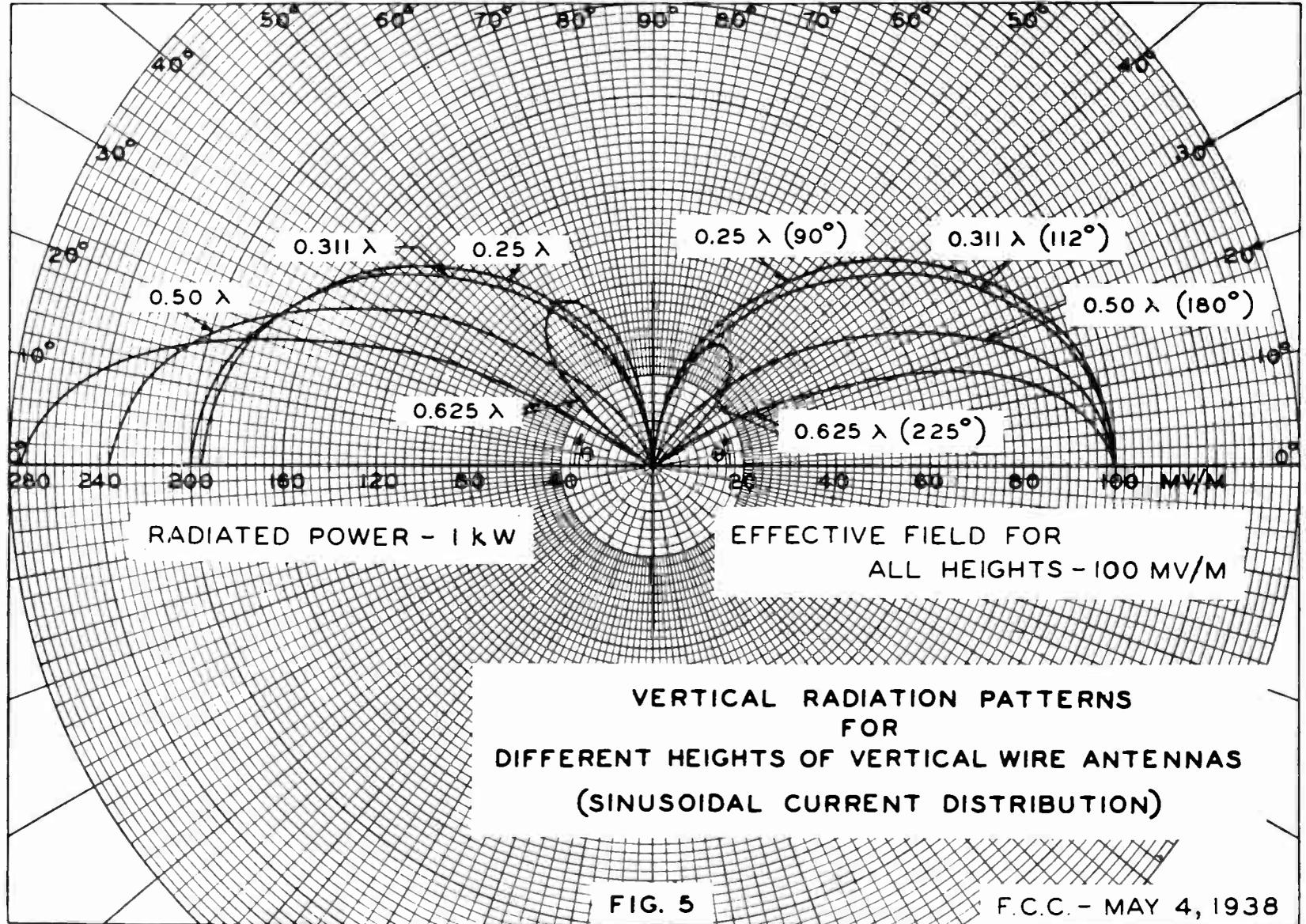
**10% SKYWAVE SIGNAL RANGE**  
 540 KHz TO 1600 KHz  
 HOURLY MEDIAN FIELDS FOR 10% OF THE YEAR  
 BASED ON 1944 PROPAGATION  
 RESULTANT SKYWAVE FIELDS FROM AN ANTENNA  
 OF HEIGHT  $h = 0.311 \lambda$  RADIATING 100 mv/m AT THE ANGLE  $\theta$   
 PERTINENT TO TRANSMISSION BY ONE REFLECTION  
 FIGURE 2

FCC § 73.190 FIGURE 2

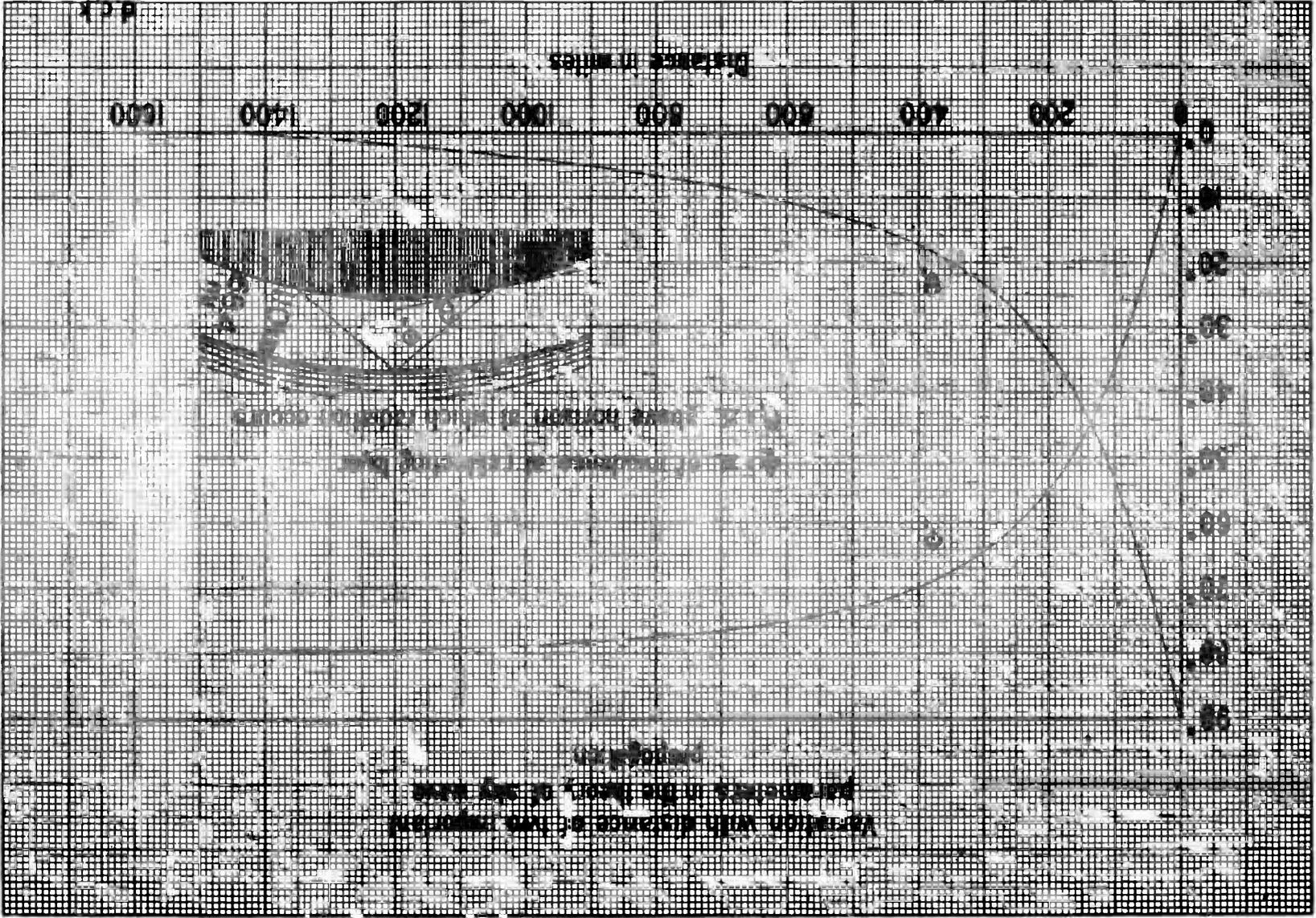










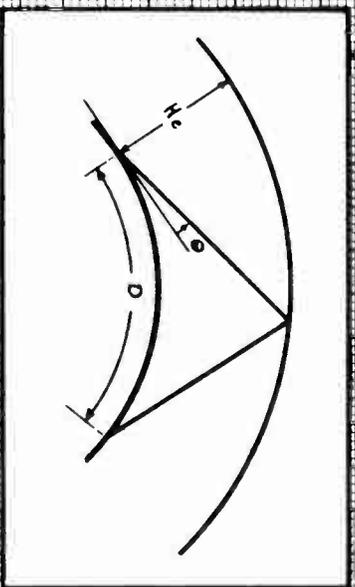
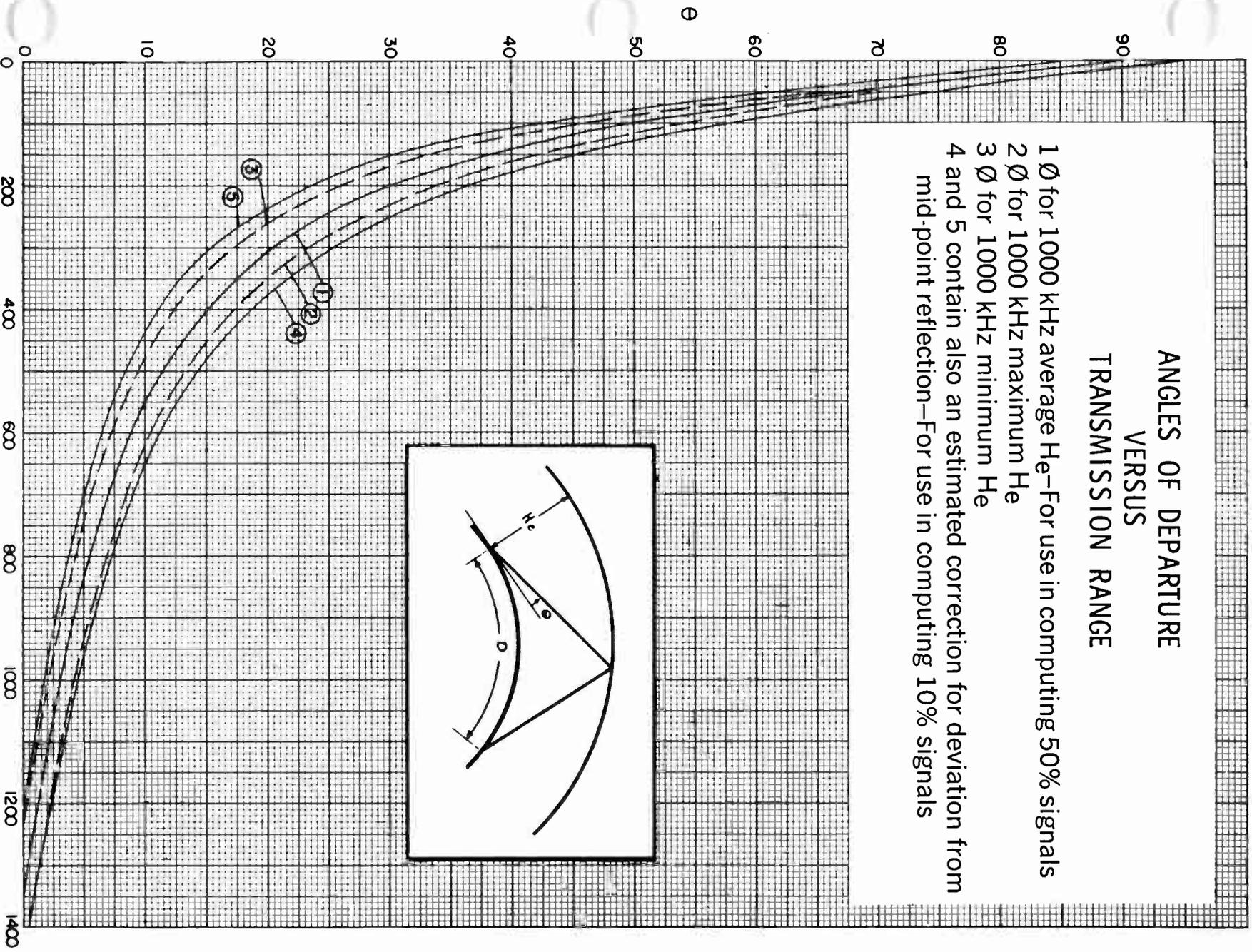


FCC § 73.190 FIGURE 6

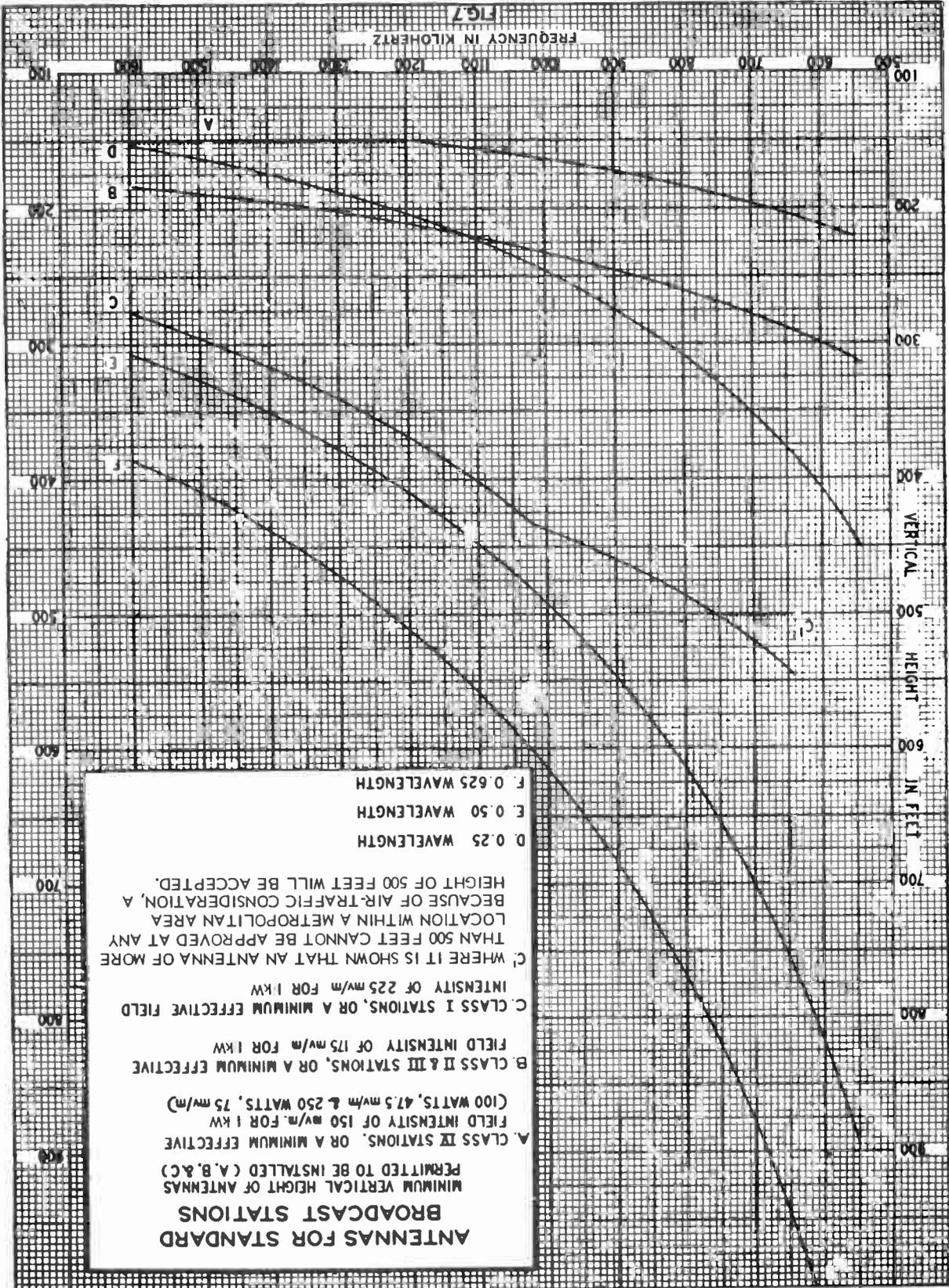


## ANGLES OF DEPARTURE VERSUS TRANSMISSION RANGE

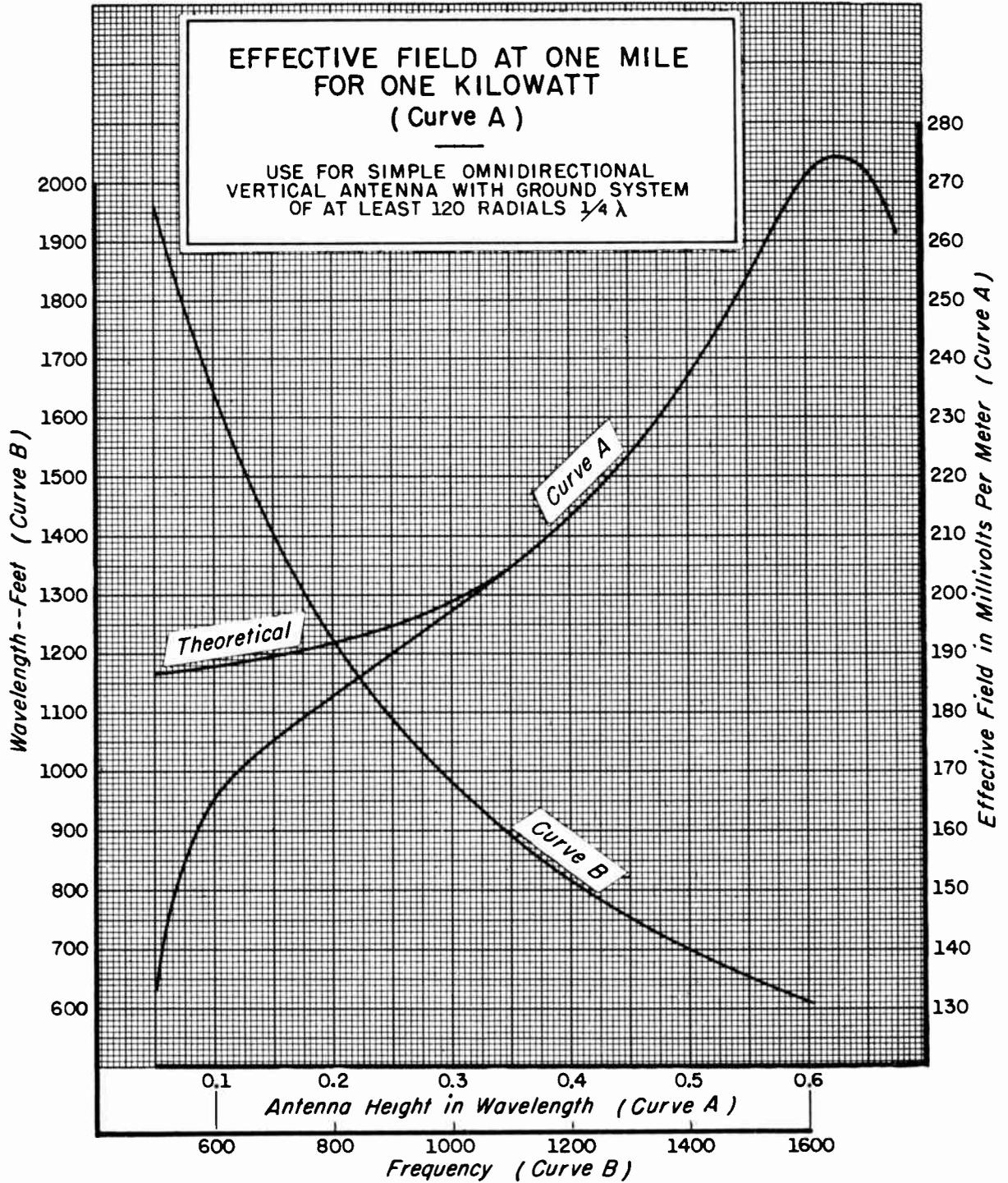
- 1  $\emptyset$  for 1000 kHz average  $H_e$ —For use in computing 50% signals
- 2  $\emptyset$  for 1000 kHz maximum  $H_e$
- 3  $\emptyset$  for 1000 kHz minimum  $H_e$
- 4 and 5 contain also an estimated correction for deviation from mid-point reflection—For use in computing 10% signals









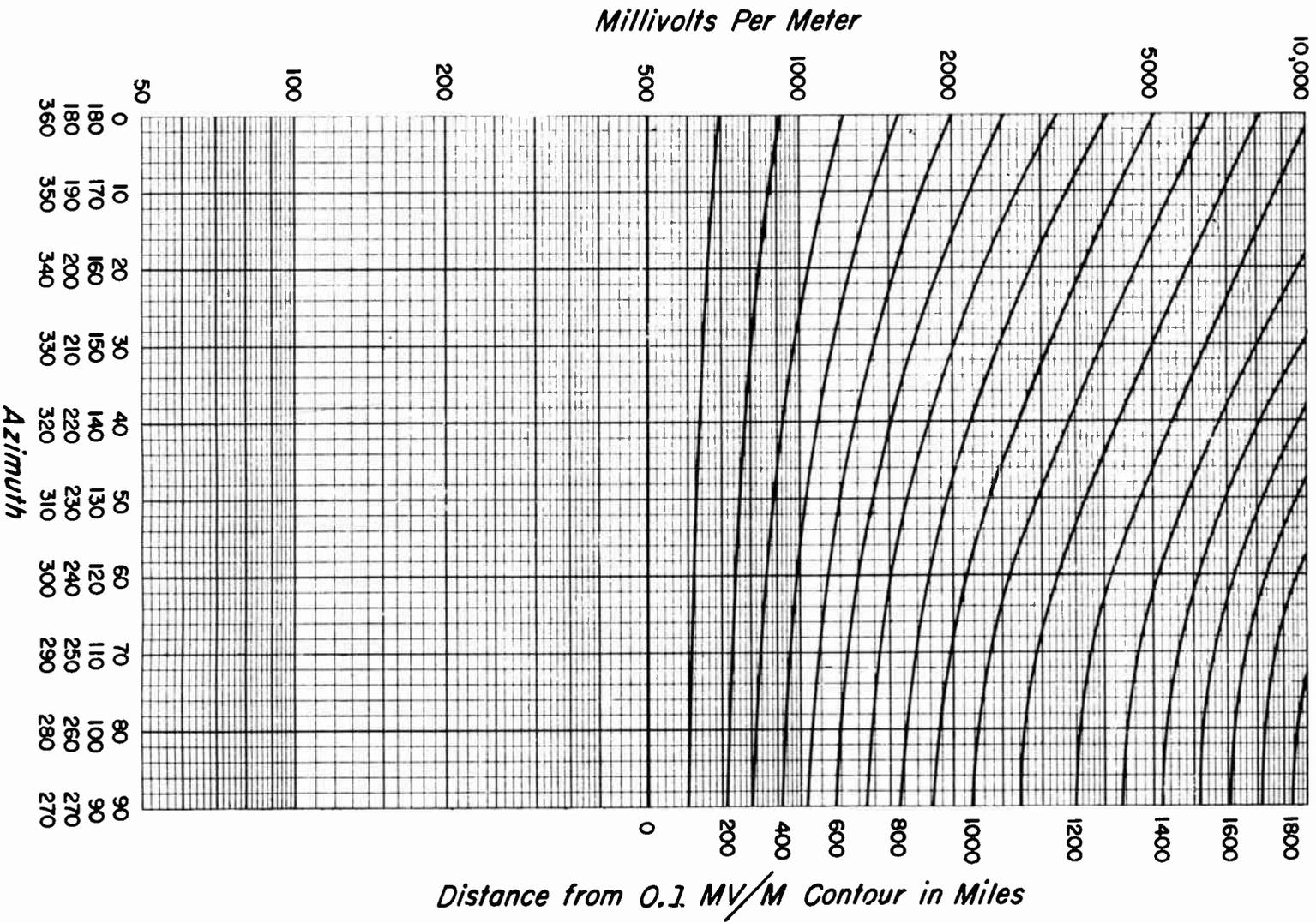


FCC § 73.190 FIGURE 8



# PERMISSIBLE DAYTIME RADIATION FOR CLASS II STATIONS

500 KHZ

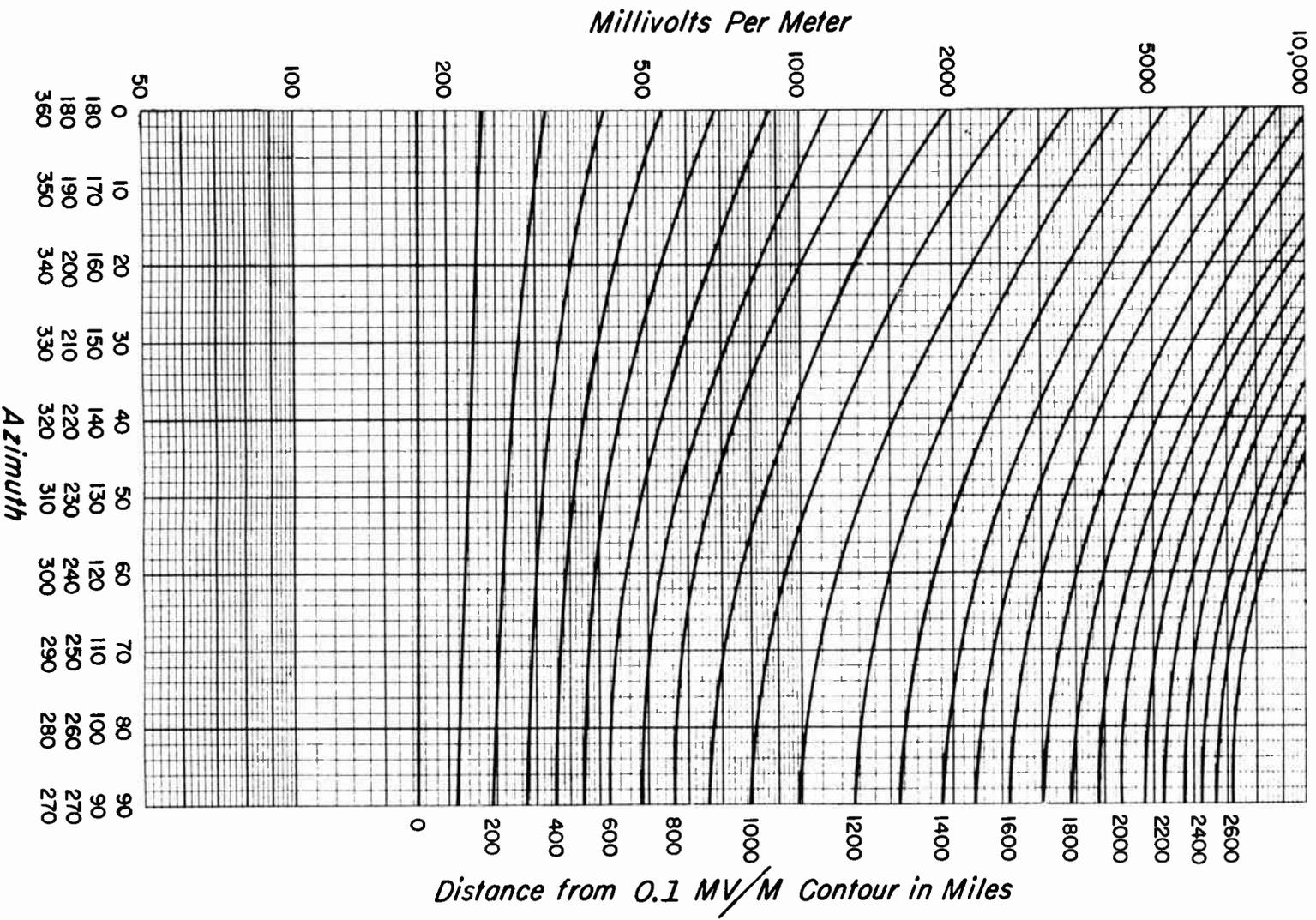


FCC § 73.190 FIGURE 9



# PERMISSIBLE DAYTIME RADIATION FOR CLASS II STATIONS

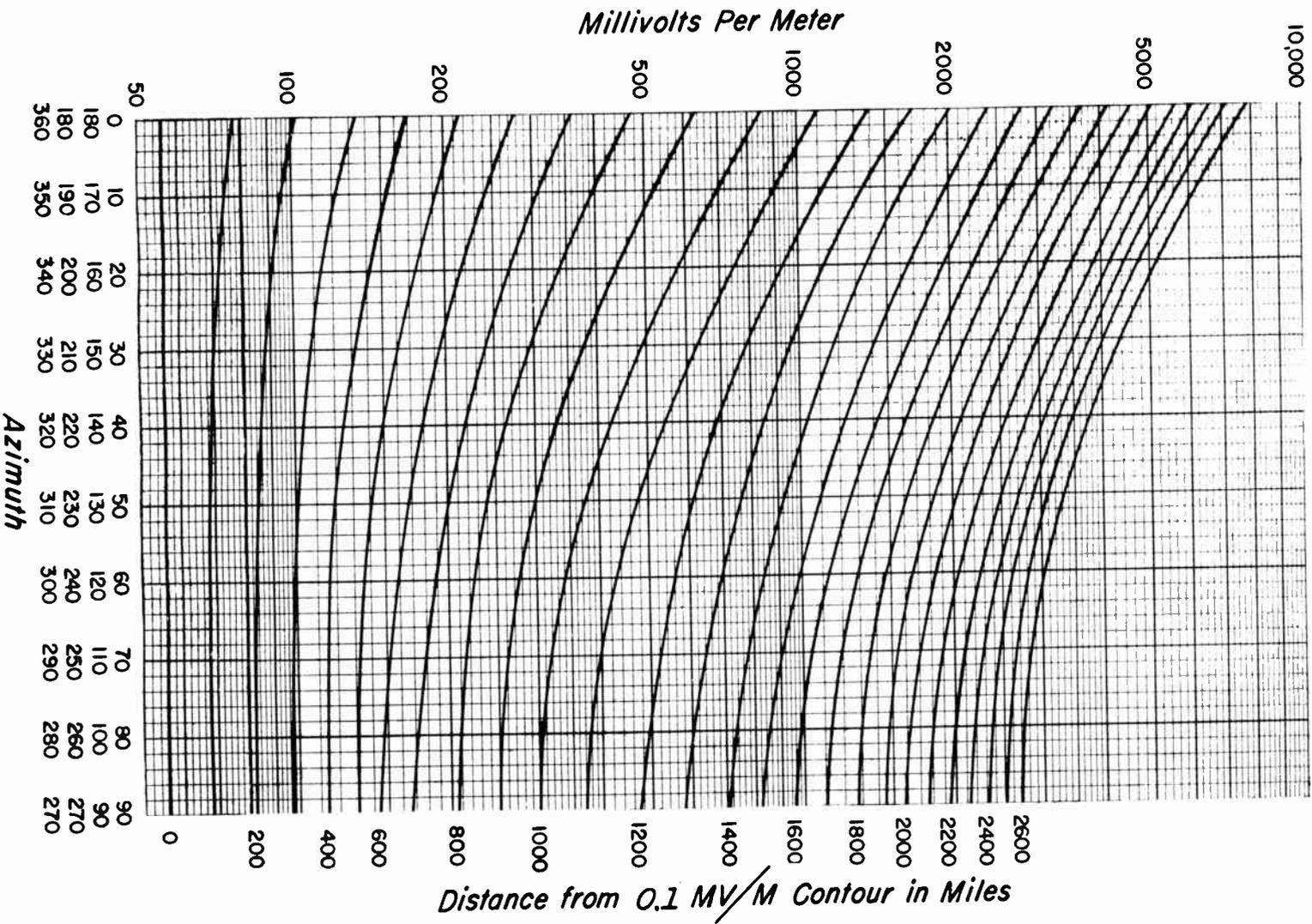
1000 KHZ





# PERMISSIBLE DAYTIME RADIATION FOR CLASS II STATIONS

1600 KHZ





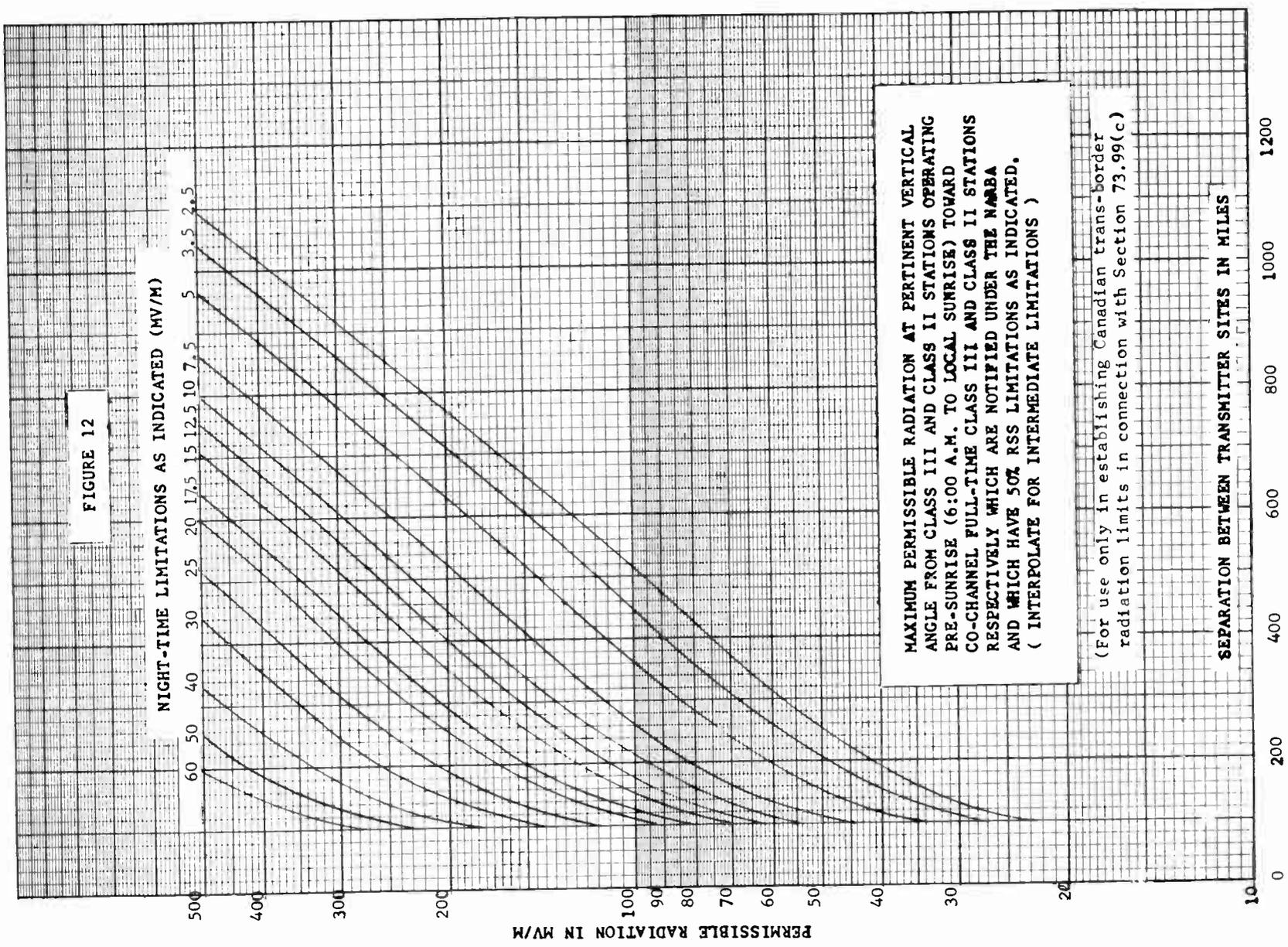


FIGURE 12

NIGHT-TIME LIMITATIONS AS INDICATED (MV/M)

PERMISSIBLE RADIATION IN MV/M

SEPARATION BETWEEN TRANSMITTER SITES IN MILES

MAXIMUM PERMISSIBLE RADIATION AT PERTINENT VERTICAL ANGLE FROM CLASS III AND CLASS II STATIONS OPERATING PRE-SUNRISE (6:00 A.M. TO LOCAL SUNRISE) TOWARD CO-CHANNEL FULL-TIME CLASS III AND CLASS II STATIONS RESPECTIVELY WHICH ARE NOTIFIED UNDER THE NARBA AND WHICH HAVE 50% RSS LIMITATIONS AS INDICATED. ( INTERPOLATE FOR INTERMEDIATE LIMITATIONS )

(For use only in establishing Canadian trans-border radiation limits in connection with Section 73.99(c))



**SUBPART B—FM BROADCAST STATIONS**

**CLASSIFICATION OF FM BROADCAST STATIONS AND ALLOCATION OF FREQUENCIES**

**§ 73.201 Numerical designation of FM broadcast channels.**

The FM broadcast band consists of that portion of the radio frequency spectrum between 88 megahertz (MHz) and 108 MHz. It is divided into 100 channels of 200 kilohertz (kHz) each. For convenience, the frequencies available for FM broadcasting (including those assigned to noncommercial educational broadcasting) are given numerical designations which are shown in the table below:

Frequency (MHz):	Channel No.	Frequency (MHz):	Channel No.
88.1	201	91.5	218
88.3	202	91.7	219
88.5	203	91.9	220
88.7	204	92.1	221
88.9	205	92.3	222
89.1	206	92.5	223
89.3	207	92.7	224
89.5	208	92.9	225
89.7	209	93.1	226
89.9	210	93.3	227
90.1	211	93.5	228
90.3	212	93.7	229
90.5	213	93.9	230
90.7	214	94.1	231
90.9	215	94.3	232
91.1	216	94.5	233
91.3	217	94.7	234

Frequency (MHz):	Channel No.	Frequency (MHz):	Channel No.
94.9	235	102.3	272
95.1	236	102.5	273
95.3	237	102.7	274
95.5	238	102.9	275
95.7	239	103.1	276
95.9	240	103.3	277
96.1	241	103.5	278
96.3	242	103.7	279
96.5	243	103.9	280
96.7	244	104.1	281
96.9	245	104.3	282
97.1	246	104.5	283
97.3	247	104.7	284
97.5	248	104.9	285
97.7	249	105.1	286
97.9	250	105.3	287
98.1	251	105.5	288
98.3	252	105.7	289
98.5	253	105.9	290
98.7	254	106.1	291
98.9	255	106.3	292
99.1	256	106.5	293
99.3	257	106.7	294
99.5	258	106.9	295
99.7	259	107.1	296
99.9	260	107.3	297
100.1	261	107.5	298
100.3	262	107.7	299
100.5	263	107.9	300
100.7	264		
100.9	265		
101.1	266		
101.3	267		
101.5	268		
101.7	269		
101.9	270		
102.1	271		

NOTE: The frequency 108.0 MHz may be assigned to VOR test stations subject to the condition that interference is not caused to the reception of FM broadcasting stations, present or future.

**§ 73.202 Table of Assignments.**

(a) *General.* The following Table of Assignments contains the channels (other than noncommercial educational channels) assigned to the listed communities in the United States, its territories and possessions. Channels designated with an "A" are for Class A FM stations. All other listed channels are for Class B stations in Zones I and I-A and for Class C stations in Zone II. Channels designated with an asterisk are assigned for use by noncommercial educational broadcast stations only. There are specific noncommercial educational FM assignments (Channels 201-220) for various communities in Arizona, California, New Mexico, and Texas. These are set forth in § 73.507.

(b) *Table of FM Assignments.*

Alabama:	Channel No.	Alabama—Continued	Channel No.
Abbeville	232A	Fairhope	221A
Albertville	286	Fayette	251
Alexander City	291	Florence	297
Andalusia	251	Gadsden	279
Anniston	263	Geneva	228A
Arab	221A	Greenville	240A
Ashland	237A	Guntersville	240A
Athens	282	Haleyville	224A
Atmore	281	Hamilton	221A
Auburn	249A	Huntsville	236, 256
Bay Minette	288A	Jackson	285A
Birmingham	229, 233, 243, 258, 284, 295, 299	Jasper	273
Brewton	292A	Marion	280A
Butler	228A	Mobile	225, 235, 241, 248, 260
Carrollton	231	Monroeville	257A
Chatom	276A	Montgomery	222, 255, 270, 277
Chickasaw	252A	Muscle Shoals	288A
Clanton	249A	Oneonta	249A
Cullman	221A, 266	Opelika	265A
Decatur	245, 271	Opp	272A
Demopolis	292A	Ozark	280A, 285A
Dothan	238, 259	Phenix City	261A
Enterprise	245, 294	Prattville	237A
Eufaula	224A	Reform	269A
Evergreen	228A	Roanoke	272A
		Scottsboro	252A

Alabama—Continued		Channel No.	Arizona—Continued		Channel No.	Arkansas—Continued		Channel No.
Selma	-----	261A, 265A	Marana	-----	252A	Forrest City	-----	228A
Sheffield	-----	292A	Mesa	-----	227, 284	Fort Smith	229, 250, 260,	265A
Stevenson	-----	269A	Miami	-----	276A	Greenwood	-----	292A
Sylacauga	-----	252A	Nogales	-----	252A	Hampton	-----	296A
Talladega	-----	224A	Page	-----	228A	Harrison	-----	244A, 275
Thomasville	-----	237A	Parker	-----	257A	Heber Springs	-----	244A
Troy	-----	289	Payson	-----	280A	Helena	-----	276A
Tuscaloosa	224A, 239,	288A	Phoenix	-----	233,	Hope	-----	285A
Tuscumbia	-----	262		238, 245, 254, 260, 268,	273	Hot Springs	244A, 248,	292A
Tuskegee	-----	240A	Prescott	-----	252A, 280A	Jacksonville	-----	262
Union Springs	-----	265A	Safford	-----	231, 256	Jonesboro	-----	270, 300
York	-----	257A	San Manuel	-----	288A	Lake Village	-----	240A
Alaska:			Scottsdale	-----	264	Little Rock	-----	231,
Anchorage	-----	263,	Sedona	-----	261A		239, 253,	270
	267, 271, *276A,	281, 288A,	Show Low	-----	228A	Louoke	-----	292A
		293	Sierra Vista	-----	265A	Magnolia	-----	300
Bethel	-----	261A	Sun City	-----	292A	Mammoth Spring	-----	236
Cordova	-----	245A	Tempe	-----	250	McGehee	-----	272A
Fairbanks	266, 273, 284		Tucson	-----	225,	Mena	-----	269A
Haines	-----	*272A		229, 235, 241, 253,	298	Monticello	-----	228A
Homer	-----	278	Wickenburg	-----	288A	Morrilton	-----	269A
Juneau	-----	282, 286	Willcox	-----	252A	Mountain Home	252A,	288A
Kenai	-----	261A	Winslow	-----	236, 247	Mountain View	-----	277
Ketchikan	290, 294		Yuma	-----	226, 236	Murfreesboro	-----	237A
Kodiak	-----	261A	Arkansas:			Nashville	-----	288A
Nome	-----	262	Arkadelphia	-----	265A	Newport	-----	288A
North Pole	-----	262	Ashdown	-----	280A	Osceola	-----	251
Petersburg	-----	*265A	Augusta	-----	249A	Ozark	-----	244A
Seward	-----	276A	Bald Knob	-----	296A	Paragould	-----	285A
Sitka	-----	284	Batesville	-----	228	Paris	-----	237A
Wrangell	-----	*269A	Benton	-----	296A	Pine Bluff	-----	222, 235
Yakutat	-----	280A	Bentonville	-----	252A	Pocahontas	-----	280A
Arizona:			Berryville	-----	296A	Rogers	-----	232A
Ajo	-----	252A	Blytheville	-----	242	Russellville	-----	265A
Apache Junction	-----	296A	Booneville	-----	221A	Salem	-----	240A
Benson	-----	249A	Brinkley	-----	272A	Searcy	-----	257A
Blashee	-----	221A	Camden	-----	246	Sheridan	-----	272A
Bullhead City	-----	272A	Cherokee Village	-----	265A	Siloam Springs	-----	289
Casa Grande	-----	288A	Clarksville	-----	224A	Springdale	-----	235A
Chandler	-----	300	Clinton	-----	221A	Stamps	-----	261A
Claypool	-----	252A	Conway	224A, 286				
Clifton	-----	237A	Corning	-----	228A			
Coolidge	-----	280A	Crossett	-----	285A			
Cottonwood	-----	240A	Dardanelle	-----	272A			
Douglas	-----	237A	DeQueen	-----	224A			
Eloy	-----	292A	De Witt	-----	244A			
Flagstaff	225, 230		Dumas	-----	296A			
Glendale	-----	222	El Dorado	240A, 257A,	276A			
Globe	-----	262	Fairfield Bay	-----	292A			
Green Valley	-----	221A	Fayetteville	221A, 280,	300			
Holbrook	-----	221A	Fordyce	-----	269A			
Kingman	-----	224A						
Lake Havasu City	-----	240A						

<sup>1</sup> Effective 3 a.m. local time, June 1, 1982 (concurrently with the expiration of the outstanding license for FM Station KHLS on Channel 241 at Blytheville, Ark.), or such earlier date as FM Station KHLS may, upon its request, cease operation on Channel 241 at Blytheville.

[Amended in III (80)-1:

- Eff. 4-20-81:  
Anchorage, Alaska
- Eff. 9-18-80:  
Bethel, Alaska Added
- Eff. 9-8-80:  
Marana, Ariz. Added
- Eff. 6-2-80:  
Bald Knob, Ark. Added
- Eff. 8-4-80:  
Booneville, Greenwood, and Waldron, Ark. Added
- Eff. 7-20-81:  
Clinton, Ark. Added
- Eff. 8-7-81:  
Hampton, Ark. Added
- Eff. 6-9-80:  
Mountain Home, Ark.]

Arkansas—Continued	Channel No.	California—Continued	Channel No.	California—Continued	Channel No.
Stuttgart	288A	Fresno	229, 238, 250, 266, 270, 274, 290	Newport Beach	276A
Texarkana	296A	Garberville	261A	Oakdale	236
Van Buren	272A	Garden Grove	232A	Oakhurst	296A
Waldron	276A	Glroy	233	Oceanside	271
Walnut Ridge	292A	Glendale	270	Olddale	237A
Warren	288A	Goleta	292A	Ojal	288A
West Helena	285A	Grass Valley	232A	Ontario	228A
Wynne	224A	Hanford	279, 298	Oroville	249A
California:		Healdsburg	225	Oxnard	252A, 284
Alameda	224A	Hemet	288A	Pacific Grove	285A
Alturas	233	Hollister	228A	Palm Springs	265A, 284, 291
Anaheim	240A	Holtville	261A	Paradise	224A, 244A
Anderson	232A	Imperial	257A	Pasadena	294
Apple Valley	272A	Indio	276A	Paso Robles	223
Arcata	228A	Inglewood	280A	Patterson	226
Arroyo Grande	237A	Jackson	232A	Placerville	221A
Auburn	266	Kernville	272A	Porterville	259
Bakersfield	231, 243, 268, 300	King City	221A	Quincy	270
Banning	269A	Lake Arrowhead	280A	Red Bluff	240A, 272A
Barstow	232A	Lakeport	252A, 258	Redding	251, 282
Berkeley	231, 275	Lancaster	292A	Redlands	244A
Bishop	264	Lemoore	285A	Redondo Beach	228A
Blythe	262	Livermore	269A	Ridgecrest	224A, 285A
Brawley	233, 241	Lodi	249A	Riverside	224A, 248, 256
Burney	291	Lompoc	224A, 265A	Rohnert Park	285A
Calexico	249A	Long Beach	250, 272A, 288A	Rosamond	288A
Callipatria	265A	Los Altos	249A	Roseville	228A
Camarillo	240A	Los Angeles	222, 226, 230, 234, 238, 242, 246, 254, 258, 262, 266, 274, 278, 282, 286, 290, 298.	Sacramento	223, 241, 245, 253, 263, 286, 293, 300
Carlsbad	240A	Los Banos	284	St. Helena	257A
Carmel	269A	Los Gatos	237A	Salinas	264, 273, 280A
Carpinteria	269A	Los Osos-Baywood Park	267	San Bernardino	236, 260
Cathedral City	253	Madera	221A	San Clemente	300
Chico	229, 236	Mammoth Lakes	292A	San Diego	231, 235, 243, 247, 251, 264, 268, 275, 279, 287, 293
Conchella	229	Manteca	244A	San Fernando	232A
Corning	264	Mariposa	242	San Francisco	227, 235, 239, 243, 247, 251, 255, 259, 267, 271, 279, 283, 287, 291, 295
Crescent City	232A	Marysville	260	San Jose	222, 253, 262, 293
Davis	288A	Merced	248, 268	San Luis Obispo	227, 241, 251
Delano	253, 287	Modesto	272A, 277, 281	San Mateo	299
Denair	240A	Mojave	249A	San Rafael	265A
Dinuba	255	Monte Rio	249A	Santa Ana	244A, 292A
El Cajon	227	Monterey	224A, 245	Santa Barbara	229, 248, 260, 277
El Centro	298	Morro Bay	283	Santa Clara	289
Escondido	221A	Mountain Pass	258	Santa Cruz	256
Eureka	222, 242, 268	Mt. Shasta	237A	Santa Maria	256, 273
Fairfield	237A	Needles	250	Santa Monica	276A
Fallbrook	296A				
Fort Bragg	224A, 237A				
Fowler	244A				
Fremont	285A				

[Amended in III(80)-1:

- Eff. 6-26-80:  
Stuttgart and West Helena,  
Ark. Added
- Eff. 4-20-81:  
Corning, Calif. Added
- Eff. 4-20-81:  
Eureka, Calif.
- Eff. 1-2-81:  
Lakeport and Williams,  
Cal. Added
- Eff. 9-15-80:  
Los Osos-Baywood Park, Cal.  
Added
- Eff. 7-10-81:  
Olddale, Cal. Added
- Eff. 4-6-81:  
Quincy, Cal.
- Eff. 2-9-81:  
Rohnert Park, Cal. Added
- Eff. 3-23-81:  
San Luis Obispo, Cal.]

California—Continued	Channel No.	Colorado—Continued	Channel No.	District of Columbia:	Channel No.
Santa Paula	244A	Glenwood Springs	224A	Washington	230, 242,
Santa Rosa	261A, 269A	Grand Junction	222, 226		246, 254, 258, 262, 266, 278, 297
Seaside	296A	Greeley	223, 241	Florida:	
Sierra Madre	296A	Gunnison	252A, 272A	Arcadia	252A
Solvang	244A	La Junta	221A	Avon Park	292A
Sonora	224A	Lamar	227, 245	Belle Glade	228A
South Lake Tahoe	261A, 276A	Leadville	228A	Big Pine Key	228A
Stockton	257A, 261A, 297	Littleton	298	Blountstown	272A
Susanville	224A	Longmont	282	Boen Itaton	260
Taft	280A	Loveland	272A	Bonita Springs	240A
Tahoe City	243	Manitou Springs	274	Bradenton	277
Tehachapi	276A	Monte Vista	244A	Cape Coral	280A
Thousand Oaks	224A	Montrose	231, 241	ChIPLEY	249A
Tracy	265A	Oak Creek	280A	Cleerwater	239, 250
Truckee	269A	Pueblo	250, 255, 260, 264, 296A	Clewiston	292A
Tulare	235, 294	Rocky Ford	240A	Cocoa	257A
Turlock	252A	Salida	221A	Cocon Beach	266, 281
Twentynine Palms	239	Security	288A	Coral Gables	286
Ukiah	233, 277	Silverton	280A	Crestview	285A
Ventura	236, 264, 296A	Snowmass Village	280A	Crystal River	253
Victorville	276A	Steamboat Springs	244A	Daytona Beach	233, 270
Visalia	225	Sterling	284, 288A	Defunk Springs	276A
Walnut Creek	221A	Trinidad	224A	DeLand	290
Wasco	249A	Vail	284	Delray Beach	274
Weed	265A	Walsenburg	272A	Destin	221A
West Covina	252A	Yuma	265A	Dunedin	221A
Williams	298	Connecticut:		Dunnellon	272A
Willows	288A	Bridgeport	260	Ft. Lauderdale	264, 278, 290, 294
Woodland	273	Brookfield	236	Fort Myers	237A, 245, 270
Yermo	251	Danbury	252A	Fort Myers Beach	257A
Yreka	249A	Darien	240A	Ft. Pierce	238, 254
Yuba City	280A	Groton	288A	Ft. Walton Beach	243, 257A
Yucca Valley	295	Hamden	267	Gainesville	265A, 279, 288A
Colorado:		Hartford	229, 243, 275, 290, 295	Goulds	252A
Alamosa	228A	Meriden	239	Green Cove Springs	224A
Aspen	249A	Middletown	285A	Hialeah	221A
Boulder	234, 247	New Britain	263	High Springs	285A
Breckenridge	272A	New Haven	232A, 256	Holiday	292A
Brush	296A	New London	265A	Homestead	239
Burlington	281	Norwich	249A	Homosassa Springs	237A
Canon City	280A	Stamford	244A	Immokalee	252A
Castle Rock	221A	Stonington	272A	Jacksonville	236,
Colorado Springs	225,	Waterbury	223, 281		241, 245, 256, 275, 283, 297
	230, 236, 243, 270	Westport	300	Jensen Beach	272A
Cortez	250, 254	Willimantic	252A	Jupiter	296A
Craig	229, 273	Delaware:		Key West	223, 258, 296A
Delta	237A	Bethany Beach	240A	La Belle	221A
Denver	230, 253, 258, 262, 266,	Dover	234	Lake City	232A
	278, 286, 290, 294	Georgetown	228A	Lakeland	231
Durango	263, 267	Milford	249A	Leesburg	294
Eagle	268	Rehoboth Beach	224A		
Fort Collins	227, 256, 300	Seaford	252A		
Fort Morgan	269A	Wilmington	229, 258		
Fruita	260				

[Amended in III (80)-1:

Eff. 2-9-81:

Eagle, Colo. Added

Eff. 4-13-81:

Fruita, Colo. Added

Eff. 9-22-80:

Snowmass Village, Colo.

Added

Eff. 8-7-80:

Goulds (added), Homestead, Jensen Beach, Jupiter, Key West, and Miami, Fla.]

Florida—Continued	Channel No.	Georgia—Continued	Channel No.	Georgia—Continued	Channel No.
Lehigh Acres.....	296A	Camilla.....	288A	Waycross.....	249A, 273, 277
Live Oak.....	251	Carrollton.....	221A	Waynesboro.....	265A
Macclenny.....	221A	Cartersville.....	288A	Wrens.....	244A
Madison.....	285A	Chatsworth.....	257A	Hawaii:	
Marathon.....	232A	Claxton.....	296A	Hilo, Hawaii.....	246, 250
Marco.....	266	Cochran.....	244A	Kealahou, Hawaii.....	221A
Marianna.....	265A	Columbus.....	275, 285A, 297	Lihue, Kauai.....	224A, 228A
Melbourne.....	272A, 292A, 296A	Cordele.....	252A	Kakawao, Maui.....	232A
Miami.....	226, 243, 247, 256, 268, 298	Cornelia.....	257A	Walluku, Maui.....	236
Miami Beach.....	230, 235	Covington.....	221A	Honolulu, Oahu.....	226,
Milton.....	274	Dawson.....	221A		230, 234, 238, 248
Mount Dora.....	299	Donalsonville.....	292A	Kailua, Oahu.....	242
Naples.....	228A, 233, 249A	Douglas.....	258, 294	Waipahu, Oahu.....	222
New Port Richey.....	288A	Dublin.....	224A, 240A	Idaho:	
Ocala.....	224A, 229	Eastman.....	221A	Blackfoot.....	249A
Okeechobee.....	276A	Elberton.....	221A	Boise.....	222, 250, 282, 286
Orlando.....	222, 243, 262, 286	Forsyth.....	261A	Burley.....	252A
Palatka.....	260	Fort Valley.....	292A	Caldwell.....	231, 276A
Palm Beach.....	250	Gainesville.....	246, 294	Coeur d'Alene.....	276A
Panama City.....	223, 253, 300	Glennville.....	292A	Emmitt.....	269A
Pensacola.....	231, 264, 268, 297	Gordon.....	296A	Grangeville.....	224A
Perry.....	288A	Greensboro.....	280A	Idaho Falls.....	241, 256
Plantation Key.....	262	Griffin.....	249A	Jerome.....	275
Port Charlotte.....	261A	Hawkinsville.....	280A	Lewiston.....	244A, 295
Port St. Joe.....	228A	Hazlehurst.....	228A	Moscow.....	280A
Punta Gorda.....	224A	Hinesville.....	221A	Mountain Home.....	257A
Quincy.....	269A, 285A	Homerville.....	288A	Nampa.....	235, 245
Riviera Beach.....	232A	Jesup.....	252A, 288A	Orofino.....	237A
St. Augustine.....	249A, 288A	La Grange.....	281	Payette.....	261A
St. Petersburg.....	258, 268, 297	Louisville.....	221A	Pocatello.....	229, 235, 285A
Sanford.....	237A	Macon.....	256, 287, 300	Preston.....	244A
Sarasota.....	273, 288A, 292A	Manchester.....	227	Rexburg.....	232A, 252A
Sebring.....	288A	Marletta.....	268	Rupert.....	221A
Starke.....	292A	Martinez.....	232A	Salmon.....	224A
Stuart.....	224A	McRae.....	237A	Sandpoint.....	237A
Tallahassee.....	235, 240A, 255, 276A, 281	Milledgeville.....	272A	Soda Springs.....	261A
Tampa.....	227, 235, 264, 284	Metter.....	285A	Sun Valley.....	228A, 237A
Titusville.....	252A	Moultrie.....	230	Twin Falls.....	239, 243
Venice.....	221A	Newnan.....	244A	Wallace.....	264, 282
Vero Beach.....	228A, 288A	Ocilla.....	249A	Weiser.....	265A
West Palm Beach.....	221A, 283, 300	Perry.....	265A	Illinois:	
Winter Haven.....	248	Rockmart.....	296A	Aledo.....	272A
Winter Park.....	276A	Rome.....	249A, 272A	Alton.....	262
Georgia:		St. Marys.....	228A	Anna.....	224A
Adel.....	221A	St. Simons Island.....	224A	Arlington Heights.....	224A
Albany.....	242, 269A, 283	Sandersville.....	228A	Aurora.....	240A, 300
Americus.....	232A, 249A	Savannah.....	226,	Ava.....	280A
Athens.....	238, 284		231, 238, 243, 247, 271	Beardstown.....	232A
Atlanta.....	225, 235, 241, 253, 259, 277	Smyrna.....	231	Benton.....	292A
Augusta.....	272A, 276A, 282, 289	Soperton.....	269A	Bloomington.....	268
Bainbridge.....	247	Sparta.....	249A	Canton.....	252A
Baxley.....	233	Springfield.....	280A	Carbondale.....	268
Blackshear.....	285A	Statesboro.....	261A	Carmi.....	247
Blue Ridge.....	280A	Swainsboro.....	252A, 280A	Carpentersville.....	280A
Brunswick.....	264, 268	Thomaston.....	237A	Carthage.....	221A
Buford.....	272A	Thomasville.....	296A	Centralia.....	237A
Cairo.....	272A	Thomson.....	269A	Champaign.....	233, 248
		Tifton.....	262	Charleston.....	221A
		Toccoa.....	291	Chicago.....	226, 230,
		Valdosta.....	225, 240A, 266		234, 238, 242, 246, 250, 254,
		Vidalia.....	240A		258, 262, 266, 278, 282, 298
		Warner Robins.....	269A	Chillicothe.....	232A
		Washington.....	261A	Clinton.....	240A
				Crest Hill.....	252A

[Amended in III(80)-1:  
*Eff. 9-18-80:*  
*Blue Ridge, Ga. Added*  
*Eff. 5-23-80:*  
*St. Simons Island (added) and Way-*  
*cross, Ga.]*

Illinois—Continued	Channel No.	Illinois—Continued	Channel No.	Indiana—Continued	Channel No.
Danville	256, 271	Peru	265A	Franklin	240A
Decatur	236, 257A, 275	Pittsfield	249A	French Lick	261A
Dekalb	223	Plano-Sandwich	296A	Goshen	249A
Dixon	269A	Pontiac	276A	Greensfield	258
DuQuoin	240A	Princeton	252A	Greensburg	297
East Moline	267	Quincy	258, 286	Hammond	232
E. St. Louis	266	Rantoul	237A	Hartford City	228A
Effingham	239, 249A	Robinson	269A	Huntingburg	265A
Eldorado	272A	Rochelle	272A	Huntington	276A
Elgin	232A	Rockford	248, 265A, 285A	Indianapolis	226, 234, 238, 277, 283, 289, 300
Elmwood Park	290	Rock Island	255	Jasper	284
Evanston	286	Rushville	244A	Jeffersonville	239
Fairfield	285A	Salem	261A	Kendallville	227
Farmer City	252A	Savana	261A	Knox	257A
Flora	280A	Shelbyville	285A	Kokomo	224A, 263
Freeport	221A, 253	Skokie	270	Lafayette	228A, 243, 287
Galesburg	224A, 235	South Beloit	276A	Laporte	244A
Geneseo	285A	Springfield	254, 270, 279, 283	Lebanon	265A
Grantite City	285A, 293	Sterling	232A	Linton	228A
Harrisburg	260	Streator	249A	Logansport	237A, 272A
Havana	257A	Sullivan	292A	Loogootee	232A
Highland Park	276A	Taylorville	224A	Lowell	296A
Hoopeston	265A	Tuscola	228A	Madison	244A
Jacksonville	263	Urbana	280A, 296A	Marion	295
Jerseyville	281	Vandalla	296A	Martinsville	272A
Joliet	228A, 244A	Virden	244A	Michigan City	240A
Kankakee	260, 272A	Watseka	231	Muncie	*221A, 281, 285A
Kewanee	221A	Waukegan	272A, 294	New Castle	273
Lansing	292A	West Frankfort	249A	North Vernon	291
LaSalle	257A	Wilmington	288A	Paoli	237A
Lawrenceville	276A	Woodstock	288A	Peru	252A
LeRoy	224A	Indiana :		Petersburg	272A
Lincoln	261A	Alexandria	244A	Plainfield	252A
Litchfield	291	Anderson	250	Plymouth	232A
Loves Park	244A	Angola	261A	Portland	265A
Macomb	261A, 276A	Auburn	288A	Princeton	251
Marion	297	Aurora	257A	Rensselaer	249A
Mattoon	245	Batesville	280A	Richmond	241, 267
Mendota	261A	Bedford	288A	Rochester	221A
Metropolis	252A	Bloomington	222, 244A, *279	Rockville	285A
Moline	245	Boonville	296A	Rushville	232A
Monmouth	249A	Bluffton	261A	Salem	255
Monticello	288A	Brazil	232A, 249A	Scotsburg	265A
Morris	284	Columbia City	292A	Seymour	229
Morton	272A	Columbus	268, 285A	Shelbyville	246
Mount Carmel	235	Connersville	262	South Bend	225, 268, 276A, 280A
Mount Vernon	231	Covington	275A	Sullivan	237A
Murphysboro	285A	Crawfordsville	280A, 292A	Terre Haute	260, 264, 274, 298
Normal	244A	Crown Point	280A	Valparaiso	288A
Oak Park	274	Danville	296A	Versailles	276A
Olney	225	Decatur	224A	Vevay	240A
Ottawa	237A	Elkhart	264, 284	Vincennes	244A
Pana	265A	Elwood	269A	Wabash	240A
Paris	253	Evansville	281, 287	Warsaw	297
Paxton	285A	Fort Wayne	236, 247, 269A, 280A	Washington	293
Pekin	237A, 285A	Fowler	252A	West Terre Haute	288A
Peoria	227, 289, 295	Frankfort	259		

## [Amended in III(80)-1:

Eff. 10-24-80:

Effingham, Ill.

Eff. 6-6-80:

Paxton, Ill. Added

Eff. 4-13-81:

Rushville and Virden, Ill. Added

Eff. 4-27-81:

Loogootee, Ind. Added

Eff. 4-20-81:

Petersburg, Ind. Added]

	Channel No.		Channel No.		Channel No.
Indiana—Continued		Iowa—Continued		Kentucky—Continued	
Winchester .....	252A	Sioux City .....	238, 250, 277	Barbourville .....	228A
Iowa :		Spencer .....	285A, 299	Bardstown .....	244A
Algona .....	224A	Storm Lake .....	268	Beattyville .....	272A
Ankeny .....	292A	Washington .....	237A	Beuton .....	272A
Ames .....	281, 296A	Waterloo .....	270, 289, 300	Bowling Green .....	244A, 252A
Atlantic .....	279	Waverly .....	257A	Brandenburg .....	228A
Bettendorf .....	228A	Webster City .....	240A	Cadiz .....	292A
Bloomfield .....	292A	Kansas :		Campbellsville .....	280A
Boone .....	252A, 257A	Arkansas City .....	293	Carrollton .....	261A
Burlington .....	228, 297	Baxter Springs .....	296A	Catlettsburg .....	224A
Carroll .....	229	Beloit .....	288A	Central City .....	270
Cedar Rapids .....	243, 251, 275, 283	Chanute .....	288A	Columbia .....	228A
Centerville .....	254	Clay Center .....	265A	Corbin .....	257A, 296A
Charlton .....	288A	Coffeyville .....	221A	Cynthiana .....	272A
Charles City .....	240A	Colby .....	262	Danville .....	296A
Cherokee .....	221A	Columbus .....	252A	Elizabethtown .....	261A
Clarinda .....	292A	Concordia .....	237A	Elkhorn City .....	276A
Clarion .....	245	Derby .....	240A	Erlanger .....	265A
Clear Lake .....	276A	Dodge City .....	230, 238	Falmouth .....	237A
Clinton .....	241, 249A	El Dorado .....	257A	Flemingsburg .....	292A
Creston .....	269A	Emporia .....	285A	Fort Knox .....	288A
Davenport .....	279, 293	Fort Scott .....	280A	Frankfort .....	285A
Decorah .....	280A	Garden City .....	247	Fulton .....	257A
Denison .....	296A	Goodland .....	273	Georgetown .....	276A
Des Moines .....	227, 235, 247, 262, 273	Great Bend .....	282	Glasgow .....	236, 288A
Dubuque .....	225, 272A, 287	Hays .....	277	Greensburg .....	276A
Elkader .....	261A	Hawatha .....	280A	Greenup .....	288A
Emmetsburg .....	252A	Holsington .....	265A	Greenville .....	288A
Estherville .....	240A	Hutchinson .....	271, 275	Hardinsburg .....	232A
Fairfield .....	240A	Independence .....	269A	Harrodsburg .....	257A
Forest City .....	272A	Iola .....	257A	Hartford .....	292A
Fort Dodge .....	221A, 233	Junction City .....	233, 252A	Hazard .....	266
Fort Madison .....	269A	Kansas City .....	231, 251	Henderson .....	258, 276A
Grundy Center .....	249A	Larned .....	244A	Hindman .....	296A
Hampton .....	285A	Lawrence .....	290	Hodgenville .....	292A
Harlan .....	288A	Leavenworth .....	255	Hopkinsville .....	254, 262
Humboldt .....	249A	Liberal .....	257A, 288A	Jackson .....	249A
Ida Grove .....	224A	Lyons .....	291	Jamesstown .....	285A
Independence .....	237A	Manhattan .....	269A, 280A	Jeffersontown .....	269A
Iowa City .....	230, 264	Marysville .....	276A	Jenkins .....	232A
Iowa Falls .....	237A	McPherson .....	244A	Lebanon .....	265A
Keokuk .....	237A	Newton .....	222	Leitchfield .....	285A
Knoxville .....	221A	Oberlin .....	266	Lexington .....	225, 233, 251
Le Mars .....	258	Osage City .....	224A	Liberty .....	288A
Maquoketa .....	237A	Ottawa .....	239	London .....	280A
Marshalltown .....	266	Parsons .....	228A	Louisville .....	248, 259, 272A, 276A, 280A, 295
Mason City .....	252A, 291	Phillipsburg .....	221A	Madisonville .....	230
Mount Pleasant .....	288A	Pittsburg .....	245	Manchester .....	276A
Muscatine .....	259	Pratt .....	226	Martin .....	261A
Newton .....	240A	Russell .....	240A	Mayfield .....	234
Oelwein .....	222	Salina .....	229, 260	Maysville .....	240A
Onawa .....	272A	Scott City .....	233	Middlesboro .....	224A
Osage .....	224A	Seneca .....	221A	Monticello .....	269A
Oskaloosa .....	285A	Topeka .....	247, 262, 295, 299	Morehead .....	221A
Ottumwa .....	224A, 249A	Wellington .....	228A	Morganfield .....	237A
Pella .....	277	Wichita .....	236, 250, 267, 279, 297	Mount Sterling .....	288A
Perry .....	285A	Winfield .....	288A	Munfordville .....	272A
Red Oak .....	237A	Kentucky :		Murray .....	279
Rockwell City .....	288A	Albany .....	292A	Owensboro .....	223, 241
Sheldon .....	288A	Ashland .....	229, 272A		
Sioux Center .....	232A				

[Amended in III(80)-1:  
*Eff. 12-26-80:*  
*Bettendorf, Iowa Added*  
*Eff. 6-9-80:*  
*Bloomfield, Iowa Added*  
*Eff. 7-20-80:*  
*Seneca, Ks. Added*  
*Eff. 4-15-81:*  
*Greenup, Ky. Added*]

	Channel No.		Channel No.		Channel No.
Kentucky—Continued		Louisiana—Continued		Maine—Continued	
Owingsville	296A	Many	296A	Skowhegan	286
Paducah	227, 245	Marksville	221A, 249A	South Paris	224A
Paintsville	255	Minden	237A	Waterville	252A
Paris	244A	Monroe	270, 281, 291	Westbrook	265A
Pikeville	221A	Morgan City	244A	Maryland:	
Pineville	292A	Natchitoches	249A	Annapolis	256, 300
Prestonsburg	238, 288A	New Iberia	256	Baltimore	222,
Princeton	285A	New Orleans	222, 227,		226, 236, 250, 270, 274, 282, 293
Providence	249A		239, 246, 253, 258, 266, 270	Berlin	280A
Richmond	269A	New Roads	292A	Bethesda	234, 272A
Russellville	266	Oak Grove	244A	Braddock Heights	280A
Somerset	244A	Oakdale	285A	Cambridge	292A
Stanford	240A	Opelousas	296A	Catonsville	289
Stanton	285A	Port Sulphur	294	Cumberland	275, 291
Tompkinsville	221A	Ruston	298	Enston	244A
Vanceburg	285A	Shreveport	229, 233, 243, 261A, 266	Federalsburg	296A
Versailles	292A	Slidell	287	Frederick	260
Whitesburg	280A	Springhill	224A	Frostburg	287
Wickliffe	240A	Sulphur	265A	Glen Burnie	240A
Winchester	261A	Tallulah	285A	Grasonville	276A
Louisiana:		Thibodaux	202A	Hagerstown	284, 295
Abbeville	285A	Ville Platte	228A	Halfway	244A
Alexandria	226, 245, 262	West Monroe	252A	Havre de Grace	279
Bastrop	232A, 261A	Winnfield	221A	Lexington Park	249A
Baton Rouge	251, 264, 268, 273	Winnsboro	240A	Middletown	276A
Bayou Vista	237A	Maine:		Oakland	238
Benton	221A	Auburn	260	Oakland (Western)	221A
Bogalusa	300	Augusta	221A, 267, 282	Ocean City	260, 284
Boyce	252A	Bangor	225, 246	Pocomoke City	273
Clinton	224A	Bath	290	Prince Frederick	224A
Columbia	276A	Biddeford	232A	Salisbury	232A, 288A
Crowley	275	Brewer	265A	Waldorf	281
DeRidder	269A	Brunswick	255	Westminster	204
Donaldsonville	285A	Calais	224A	Williamsport	240A
Dubach	249A	Camden	273	Massachusetts:	
Eunice	288A	Caribou	249A	Amherst	265A
Farmerville	224A	Dover-Foxcroft	276A	Barnstable	260
Ferriday	296A	Ellsworth	232A, 239	Boston	233,
Franklin	288A	Farmington	257A		245, 253, 264, 277, 281, 204
Golden Meadow	232A	Houlton	261A	Brockton	249A
Hammond	277, 296A	Lewiston	230, 298	Brookline	225
Haynesville	288A	Lincoln	257A		
Houma	281, 296A	Machias	237A		
Jena	257A	Madawaska	272A		
Jennings	224A	Millinocket	249A		
Jonesboro	285A	Portland	226, 250, 270, 275		
Kaplan	249A	Presque Isle	241, 245, 269A, *291		
Lafayette	233, 260	Rockland	228A		
Lake Charles	241, 258, 279	Rumford	242		
Lake Providence	224A	Saco	240A		
Leesville	224A, 288A	Sanford	221A		
Mansfield	224A	Scarborough	292A		

<sup>1</sup> Effective 3 a.m. local time, June 1, 1982 (concurrently with the expiration of the outstanding license for FM Station KILS on Channel 241 at Blytheville, Ark.), or such earlier date as FM Station KHLs may, upon its request, cease operation on Channel 241 at Blytheville.

- [Amended in III(80)-1:  
*Eff. 8-7-81:*  
 Owingsville, Ky. Added  
*Eff. 6-6-80:*  
 Boyce, La. Added  
*Eff. 4-20-81:*  
 Auburn, Me.  
*Eff. 11-13-80:*  
 Saco, Me.  
*Eff. 11-13-80:*  
 Scarborough, Me. Added  
*Eff. 11-17-80:*  
 Skowhegan, Me.  
*Eff. 11-5-80:*  
 Middletown, Md. Added]

Massachusetts—Continued		Channel	Michigan—Continued		Channel	Michigan—Continued		Channel
		No.			No.			No.
Cambridge	-----	237A	East Lansing	-----	235, 256	Sallie	-----	275
Chatham	-----	298	Escanaba	-----	246, 284	Sandusky	-----	249A
Falmouth	-----	265A, 270	Flint	-----	224A, 236, 288A, 300	Sault Ste. Marie	-----	258, 267
Fitchburg	-----	283	Frankfort	-----	257A	Scottville	-----	240A
Framingham	-----	280	Fremont	-----	261A	South Haven	-----	252A
Gloucester	-----	285A	Gaylord	-----	237A, 294	Sturgis	-----	257A
Greenfield	-----	237A, 252A	Gladwin	-----	276A	Tawas City	-----	269A, 280A
Haverhill	-----	223	Grand Haven	-----	221A	Three Rivers	-----	240A
Hyannis	-----	201	Grand Rapids	-----	229, 239, 245, 250, 267, 275, 281, 289	Traverse City	-----	221A, 270, 278
Lawrence	-----	229	Grayling	-----	261A	Whitehall	-----	237A
Lowell	-----	258	Greenville	-----	297	Zeeland	-----	257A
Lynn	-----	269A	Hancock	-----	228A	Minnesota:		
Marshfield	-----	240A	Harrison	-----	221A	Atkin	-----	232A
Medford	-----	300	Hart	-----	287	Albany	-----	288A
Nantucket	-----	228A	Hastings	-----	261A	Albert Lea	-----	237A
New Bedford	-----	247, 251	Hillsdale	-----	221A	Alexandria	-----	224A, 264
North Adams	-----	261A	Holland	-----	233, 241	Anoka	-----	300
North Attleboro	-----	227	Houghton	-----	249A	Austin	-----	260
Northampton	-----	257A	Houghton Lake	-----	253	Bemidji	-----	266
Orleans	-----	284	Howell	-----	228A	Benson	-----	228A
Pittsfield	-----	240A, 269A, 289A	Ishpeming	-----	222, 296A	Blue Earth	-----	265A
Plymouth	-----	256	Iron Mountain	-----	226, 268	Brainerd	-----	294, 298
Southbridge	-----	261A	Iron River	-----	244A	Breckenridge	-----	285A
Springfield	-----	226, 234, 271	Ironwood	-----	259, 295	Cambridge	-----	288A
Tisbury	-----	224A	Jackson	-----	231, 291	Cloquet	-----	265A
Waltham	-----	273	Kalamazoo	-----	271, 293, 299	Crookston	-----	241, 246
West Yarmouth	-----	235	Kalkaska	-----	249A	Detroit Lakes	-----	237A
Winchendon	-----	249A	Lansing	-----	248, 264, 269A	Duluth	-----	225, 235, 255, 273, 277, 286
Worcester	-----	241, 297	Lapeer	-----	276A	East Grand Forks	-----	280A
Michigan:			Lincoln Park	-----	222	Ely	-----	221A
Adrian	-----	237A, 280A	Ludington	-----	292A	Eveleth	-----	261A
Aibion	-----	244A, 285A	Mackinaw City	-----	232A	Fairmont	-----	293
Alma	-----	285A	Manistee	-----	249A	Faribault	-----	240A
Alpena	-----	228A, 299	Manistique	-----	234	Fergus Falls	-----	243, 277
Ann Arbor	-----	296A	Marquette	-----	239, 261A	Forest Lake	-----	240A
Atlanta	-----	223	Menominee	-----	292A	Fosston	-----	296A
Bad Axe	-----	221A	Midland	-----	228A, 259	Golden Valley	-----	223
Battle Creek	-----	237A, 277	Mt. Clemens	-----	274	Grand Rapids	-----	245
Bay City	-----	241, 273	Mt. Pleasant	-----	233	Hibbing	-----	230, 292A
Beaverton	-----	249A	Munising	-----	252A	Hutchinson	-----	296A
Benton Harbor	-----	260	Muskegon	-----	283, 295	International Falls	-----	232A
Big Rapids	-----	265A, 272A	Muskegon Heights	-----	269A	Litchfield	-----	237A
Birmingham	-----	234	Newberry	-----	228A	Little Falls	-----	221A
Boyer City	-----	228A	Niles	-----	237A	Luverne	-----	265A
Cadillac	-----	225, 244A	Otsego	-----	265A	Mankato	-----	256, 278
Caro	-----	285A	Owasco	-----	280A	Marshall	-----	261A
Charlevoix	-----	290	Petoskey	-----	244A, 255	Minneapolis	-----	229, 246, 253, 258, 262, 267, 275
Charlotte	-----	224A	Pinconning	-----	265A	Montevideo	-----	288A
Cheboygan	-----	286	Port Huron	-----	296A	Moorhead	-----	254, 280
Clare	-----	237A	Rogers City	-----	249A	* Any application for this channel must specify at least an effective radiated power of 75 kW and antenna height of 500 feet above average terrain or equivalent.		
Coldwater	-----	253	Saginaw	-----	251, 292A, 296A			
Dearborn	-----	262	St. Helen	-----	288A			
Detroit	-----	226, 238, 242, 246, 250, 254, 258, 266, 270, 278, 282, 286, 290, 294, 298	St. Ignace	-----	275			
Dowagiac	-----	221A	St. Johns	-----	221A			
			St. Joseph	-----	296A			

[Amended in III(80)-1:  
*Eff. 10-9-80:*  
 Chatham, Mass. Added  
*Eff. 4-27-81:*  
 Falmouth, Mass.  
*Eff. 10-2-80:*  
 Big Rapids, Mich.  
*Eff. 10-24-80:*  
 Iron River Mich.  
*Eff. 8-31-79:*  
 Scottsville, Mich.  
*Eff. 6-6-81:*  
 Grand Rapids and Hibbing, Minn.]

Minnesota—Continued		Mississippi—Continued		Missouri—Continued	
	Channel No.		Channel No.		Channel No.
Morris	239	Corinth	232A, 237A	Bollivar	292A
New Ulm	226	Drew	237A	Boonville	257A
Nisswa	261A	Eupora	269A	Bowling Green	265A
Olivia	269A	Fayette	249A	Branson	292A
Ortonville	292A	Forest	223	Brookfield	249A
Owatonna	285A	Fulton	269A	Butler	221A
Park Rapids	248	Greenville	250, 264	Cabool	292A
Pine City	221A	Greenwood	250	California	232A
Pipestone	254	Grenada	261A	Canton	272A
Preston	276A	Gulfport	244A, 272A, 296A	Cape Girardeau	264, 275
Princeton	292A	Hattiesburg	221A, 279, 283	Carrollton	266
Red Wing	269A	Hazlehurst	265A	Carthage	285A
Redwood Falls	249A	Heidelberg	257A	Caruthersville	276A
Rochester	244A, 248, 269A, 295	Holly Springs	224A	Centralla	221A
St. Cloud	251, 284	Houston	227	Chillicothe	280A
St. James	285A	Indianola	288A	Clayton	256
St. Louis Park	281	Iuka	285A	Clinton	237A
St. Paul	233, 237A, 271	Jackson	234, 238, 242, 259, 275	Columbia	244A, 252A, 269A
St. Peter	288A	Kosciusko	286	Crestwood	234
Sauk Centre	232A	Laurel	262, 272A	DeSoto	261A
Sauk Rapids	269A	Leland	232A	Dexter	272A
Spring Grove	252A	Lexington	292A	Doniphan	249A
Thief River Falls	257A	Louisville	206A	Eldon	224A
Virginia	296A	Magre	298	Eldorado Springs	288A
Wadena	290	McComb	231, 289	Farmington	253
Waseca	221A	Meridian	246, 267	Fulton	249A
Willmar	273	Moss Point	285A	Gordonville	257A
Windom	232A	Natchez	236	Greenfield	228A
Winona	237A	New Albany	278, 292A	Hannibal	226
Worthington	236	Newton	292A	Harrisonville	264
Mississippi:		Ocean Springs	276A	Houston	257A
Aberdeen	288A	Oxford	248	Jefferson City	261A, 295
Ackerman	300	Pascagoula	256, 292A	Joplin	223, 273
Amory	237A	Philadelphia	272A	Kansas City	227,
Baldwyn	240A	Plaquemine	292A	235, 243, 259, 271, 277, 282	
Bay Springs	228A	Pontotoc	244A	Kennett	255
Blox1	229	Prentiss	252A	Kirksville	228A, 233
Booneville	257A	Quitman	252A	Lebanon	221A, 279
Brandon	249A	Ripley	272A	Lexington	297
Brookhaven	221A	Sardis	240A	Liberty	293
Calhoun City	272A	Senatobia	237A	Louisiana	269A
Canton	269A	Starkville	221A, 292A	Malden	224A
Carthage	252A	Tupelo	253	Mansfield	240A
Centerville	285A	Tylertown	249A	Marshall	275
Charleston	232A	Vicksburg	254, 294	Marshfield	285A
Clarksdale	269A, 292A	Waynesboro	286A	Maryville	257A
Cleveland	224A, 280A	West Point	265A	Memphis	244A
Clinton	228A	Winona	244A	Mexico	239
Collins	269A	Yazoo City	221A	Moberly	284
Columbia	244A	Missouri:		Monett	240A
Columbus	276A, 280A	Aurora	261A	Monroe City	292A
		Bethany	240A		

[Amended in III (80)-1:  
*Eff. 8-7-81:*  
*Olivia, Minn. Added*  
*Eff. 11-13-80:*  
*St. James, Minn. Added*  
*Eff. 10-24-80:*  
*Ackerman, Miss. Added*  
*Eff. 5-12-80:*  
*Fayette, Miss.*  
*Eff. 8-7-80:*  
*Centralla, Mo. Added*  
*Eff. 4-13-81:*  
*Columbia and Monroe City, Mo.*  
*Eff. 11-21-80:*  
*DeSoto, Mo. Added*  
*Eff. 4-13-81:*  
*Louisiana, Mo. Added*  
*Eff. 3-2-81:*  
*Memphis, Mo. Added]*

Missouri—Continued		Channel No.	Montana—Continued		Channel No.	Nebraska—Continued		Channel No.
Montgomery City	-----	280A	Dillon	-----	252A	Hastings	-----	228A
Mountain Grove	-----	224A	Forsyth	-----	267	Holdrege	-----	249A
Nevada	-----	249A	Glasgow	-----	228A	Kearney	-----	255, 290
Osage Beach	-----	228A	Glendive	-----	243	Kimball	-----	261A
Palmyra	-----	252A	Great Falls	-----	225, 233, 255, 202A	Lexington	-----	226
Piedmont	-----	285A	Hamilton	-----	240A	Lincoln	-----	237A, 270, 274, 292A, 297
Poplar Bluff	-----	233, 238, 244A	Hardin	-----	237A	McCook	-----	240A, 276A
Portageville	-----	292A	Havre	-----	223, 236	Nebraska City	-----	249A
Potosi	-----	249A	Helena	-----	221A, 276A	Norfolk	-----	234, 294
Rolla	-----	232A, 287	Kallispell	-----	246, 253	North Platte	-----	235, 246, 278
St. Charles	-----	246	Lewistown	-----	240A	Ogallala	-----	224A, 228A
Ste. Genevieve	-----	289	Libby	-----	269A	Omaha	-----	222, 231, 241, 253, 260, 264, 283
St. Joseph	-----	286	Livingston	-----	248	O'Neill	-----	275
St. Louis	-----	222, 229, 242, 251, 273, 277, 299	Malta	-----	261A	Orchard	-----	287
Salem	-----	240A	Miles City	-----	224A	Ord	-----	280A
Sedalia	-----	221A	Missoula	-----	227, 235, 261A	Scottsbluff	-----	225, 231
Elkeston	-----	249A	Plentywood	-----	261A	Seward	-----	245
Springfield	-----	234, 247, 254, 268	Red Lodge	-----	257A	Sidney	-----	237A
Steelville	-----	244A	Ronan	-----	222	Superior	-----	280A
Sullivan	-----	265A	Scobey	-----	239	Terrytown	-----	280A
Tarkio	-----	228A	Shelby	-----	242, 250	Valentine	-----	241
Thayer	-----	296A	Sidney	-----	226, 236	Wayne	-----	285A
Trenton	-----	221A	Wolf Point	-----	224A	York	-----	285A
Union	-----	269A	Nebraska :			Nevada :		
Vandalia	-----	261A	Allance	-----	221A	Boulder City	-----	288A
Warrensburg	-----	288A	Auburn	-----	288A	Carson City	-----	234, 247, 251
Warsaw	-----	249A	Aurora	-----	276A	Elko	-----	228A, 237A
Washburn	-----	237A	Beatrice	-----	225	Ely	-----	224A
Waynesville	-----	249A, 272A	Blair	-----	292A	Fallon	-----	257A
West Plains	-----	230, 272A	Bridgeport	-----	267	Gardnerville-Minden	-----	257A
Willow Springs	-----	261A	Broken Bow	-----	252A	Henderson	-----	231, 238, 263
Montana :			Central City	-----	262	Incline Village	-----	228A
Anaconda	-----	249A	Chadron	-----	248	Las Vegas	-----	222, 226, 242, 246, 253, 270
Baker	-----	265A	Columbus	-----	228A, 266	Reno	-----	238, 293, 289, 295
Belgrade	-----	244A	Crete	-----	280A	Sparks	-----	265A
Billings	-----	227, 246, 253, 275	Fairbury	-----	257A	Tonapah	-----	224A
Bozeman	-----	229	Falls City	-----	237A	Winnemucca	-----	224A
Butte	-----	231, 238	Fremont	-----	288A			
			Gordon	-----	238			
			Grand Island	-----	239, 243, 299			

[Amended in III(80)-1:

- Eff. 7-20-81:  
Piedmont, Mo. Added
- Eff. 11-21-80:  
Potosi, Mo.
- Eff. 6-2-80:  
Steelville, Mo. Added
- Eff. 5-23-80:  
Vandalia, Mo. Added
- Eff. 4-27-81:  
Washburn, Mo. Added
- Eff. 11-17-80:  
Livingston, Mont.
- Eff. 11-5-80:  
Bridgeport, Neb. Added
- Eff. 12-26-80:  
Central City, Neb. Added
- Eff. 8-3-81:  
Orchard, Neb. Added
- Eff. 4-27-81:  
Carson City and Sparks, Nev.
- Eff. 4-27-81:  
Gardnerville-Minden, Nev. Added]

	Channel No.		Channel No.		Channel No.
<b>New Hampshire:</b>		<b>New Mexico:</b>		<b>New York—Continued</b>	
Berlin	279	Alamagordo	232A, 288A	Cherry Valley (Otsego Co.)	270
Claremont	291	Albuquerque	222,	Cobleskill	278
Conway	228A		227, 231, 242, 258, 262, 277, 300	Corning	291
Concord	272A, 288A	Artesia	225	Cortland	260
Dover	248	Aztec	235	Depew	229
Exeter	206A	Belen	249A	De Ituyter	286
Franklin	232A	Bernalillo	269A	Dundee	240A
Hanover	257A	Carlsbad	221A	Ellenville	257A
Hinsdale	285A	Clayton	228A	Elmira	224A, 232A
Keene	270	Clovis	256, 260, 298	Endicott	289
Laconia	252A	Deming	232A	Fulton	284
Littleton	292A	Espanola	272A	Garden City	224A
Manchester	230, 266	Eunice	265A	Geneva	269A
Mt. Washington	235	Farmington	225, 245	Glens Falls	240A, 296A
Nashua	292A	Gallup	229, 233	Gouverneur	237A
Newport	260A	Grants	237A	Hadley	228A
Peterborough	221A	Hobbs	231, 239	Hempstead	252A
Plymouth	261A	Jalisco	296A	Herkimer	224A
Portsmouth	262	Las Cruces	276A, 280A	Hornell	221A, 287
Rochester	244A	Las Vegas	265A	Horseheads	265A
Wolfeboro	285A	Lordsburg	240A	Hudson	228A
<b>New Jersey:</b>		Los Alamos	253	Hudson Falls	269A
Asbury Park	232A	Lovington	269A	Ithaca	228A, 247, 279
Atlantic City	236, 245, 279	Mesilla Park	285A	Jamestown	227, 269A
Avalon	232A	Portales	237A	Kingston	232A, 249A
Blairstown Township	292A	Raton	232A	Lake Placid	228A
Bridgeton	290	Roswell	235, 246	Lake Success	278
Cmlden	295	Ruidoso	228A	Liberty	240A
Canton	269A	Sante Fe	238, 247, 281, 286, 290	Little Falls	288A
Cape May	272A	Santa Rosa	240A	Middletown	224A
Cape May Court House	288A	Silver City	224A	Monticello	252A
Dover	288A	Socorro	224A	Montour Falls	285A
Eatontown	292A	Taos	269A	Moriah	292A
Egg Harbor City	285A	Truth or Consequences	244A	Mt. Kisco	292A, 296A
Franklin	272A	Tucumcari	224A	Newburgh	276A
Long Branch	296A	Tularosa	224A	New Rochelle	228A
Millville	247	<b>New York:</b>		New York	222,
Newark	234, 262, 290	Albany	238,		230, 238, 242, 246, 250, 254, 258,
New Brunswick	252A		265A, 276A, 280A, 293, 299		266, 270, 274, 282, 286, 294, 298
Newton	279	Amsterdam	240A, 285A	Ningara Falls	253
Ocean City	252A, 292A	Attica	269A	Norwich	230
Paterson	226	Auburn	295	Ogdensburg	224A, 244A
Pleasantville	257A	Babylon	232A, 272A	Olean	239, 265A
Point Pleasant	240A	Baldwinsville	221A	Oneida	292A
Princeton	277	Ballston Spa	244A	Oneonta	276A, 280A
Ship Bottom	261A	Bath	252A	Oswego	288A
Toms River	224A	Binghamton	251, 250	Owego	269A
Trenton	233, 248, 268	Buffalo	225, 233,	Patchogue	248, 291
Vineland	221A		241, 245, 257, 273, 277, 281, 293	Patterson	288A
Wildwood	264	Canandalgua	272A	Peekskill	264
Zarephath	256	Cazenovia	237A	Plattsburg	260

[Amended in III (80)-1:

- Eff. 11-17-80:  
Concord and Plymouth, N.H.
- Eff. 11-17-80:  
Franklin, Hinsdale, Littleton, and Wolfeboro, N.H. Added
- Eff. 5-23-80:  
Cape May Court House, N.J. Added
- Eff. 3-23-81:  
Albuquerque, N.M.
- Eff. 5-12-80:  
Bernalillo, N.M. Added
- Eff. 3-24-81:  
Santa Fe, N.M.
- Eff. 3-24-81:  
Cobleskill, N.Y. Added
- Eff. 10-24-80:  
Hudson Falls, N.Y. Added
- Eff. 6-2-80:  
Moriah, N.Y. Added]

New York—Continued		Channel No.	North Carolina—Continued		Channel No.	North Dakota—Continued		Channel No.
Port Jervis	-----	244A	Gastonia	-----	270	Grafton	-----	265A
Potsdam	-----	257A	Goldsboro	-----	245, 272A	Grand Forks	-----	225, 234
Poughkeepsie	-----	221A, 268, 284	Greensboro	-----	246, 254	Hettinger	-----	228A
Pulaski	-----	269A	Greenville	-----	300	Jamestown	-----	227, 238
Remsen	-----	228A	Grifton	-----	257A	Mandan	-----	285A
Riverhead	-----	280A	Havelock	-----	285A	Mayville	-----	288A
Rochester	-----	223,	Henderson	-----	223	Minot	-----	229, 246
	243, 250, 255, 263, 267, 280A		Hendersonville	-----	273	Onakes	-----	252A
Rome	-----	240A, 273	Hertford	-----	285A	Rugby	-----	237A
Sag Harbor	-----	221A	Hickory	-----	239, 275	Tloga	-----	280A
Salamanca	-----	261A	High Point	-----	238, 258, 262	Valley City	-----	265A
Saranac Lake	-----	269A	Jacksonville	-----	221A, 288A	Williston	-----	241, 253
Saratoga Springs	-----	272A	Kannapolis	-----	259	Ohio:		
Schenectady	-----	258	Kinston	-----	236, 249A	Akron	-----	243, 248
Seneca Falls	-----	257A	Laurinburg	-----	243	Alliance	-----	223
South Bristol Twsp. (Ontario Co.)	-----	236	Lexington	-----	231	Archbold	-----	240A
Southampton	-----	237A	Lumberton	-----	239, 272A	Ashland	-----	267
Southold	-----	269A	Morehead City-Beaufort	-----	240A, 277	Ashtabula	-----	246
Syracuse	-----	226, 233, 265A, 275, 300	Morganton	-----	221A	Athens	-----	252A, 288A
Ticonderoga	-----	280A	Moyock	-----	221A	Barberton	-----	235
Troy	-----	222	Murfreesboro	-----	252A	Bellaire	-----	263
Tupper Lake	-----	272A	New Bern	-----	270, 293	Bellefontaine	-----	252A
Utica	-----	245, 254, 282, 297	North Wilkesboro	-----	247	Bellevue	-----	221A
Walton	-----	221A	Plymouth	-----	240A	Belpre	-----	296A
Watertown	-----	248	Raleigh	-----	234, 241, 268	Bowling Green	-----	228A
Weathersfield Twsp. (Wyoming Co.)	-----	299	Reidsville	-----	271	Bryan	-----	265A
Wellsville	-----	228A	Roanoke Rapids	-----	272A	Bucyrus	-----	224A
Westhampton Beach	-----	296A	Rocky Mount	-----	221A, 264	Caldwell	-----	285A
White Plains	-----	280A	Roxboro	-----	244A	Cambridge	-----	244A
Woodstock	-----	261A	Salisbury	-----	293	Canton	-----	231, 251, 295
North Carolina:			Sanford	-----	288A	Cellna	-----	232A, 244A
Ahoskie	-----	257A	Shalotte	-----	228A	Chillicothe	-----	227, 232A
Albemarle	-----	265A	Shelby	-----	241	Cincinnati	-----	223, 227, 231, 253, 270, 274, 286
Asheboro	-----	222	Southern Pines	-----	296A	Circleville	-----	296A
Asheville	-----	260	Southport	-----	296A	Cleveland	-----	226, 238, 253, 258, 264, 271, 277, 281, 289, 293, 300
Belhaven	-----	221A	Statesville	-----	245, 289	Cleveland Heights	-----	222
Black Mountain	-----	295	Tabor City	-----	285A	Clyde	-----	265A
Burlington	-----	230, 266	Tarboro	-----	282	Columbus	-----	222, 234, 242, 246, 250, 259, 285A
Charlotte	-----	236, 279, 284, 300	Thomasville	-----	252A	Conneaut	-----	288A
Clinton	-----	296A	Wallace	-----	232A	Coshocton	-----	257A
Columbia	-----	289	Wanchese	-----	237A	Dnyton	-----	256, 284, 299
Concord	-----	250	Washington	-----	227	Defiance	-----	251
Dunn	-----	276A	Waynesville	-----	285A	Delphos	-----	296A
Durham	-----	286, 296A	Whiteville	-----	256	Dover	-----	269A
Eden	-----	233	Williamston	-----	279	East Liverpool	-----	282
Edenton	-----	261A	Wilmington	-----	247, 260, 265A, 274	Eaton	-----	225
Elizabeth City	-----	229, 244A	Wilson	-----	291	Elyria	-----	297
Elkin	-----	265A	Windsor	-----	249A	Findlay	-----	263
Fairmont	-----	285A	Winston-Salem	-----	226, 281, 298	Fostoria	-----	244A
Farmville	-----	232A	North Dakota:			Fremont	-----	256
Fayetteville	-----	251	Bismarck	-----	225, 233			
Forest City	-----	227	Bottineau	-----	270			
Franklin	-----	244A	Carrington	-----	249A			
Fuquay-Varina	-----	280A	Devils Lake	-----	244A			
			Dickinson	-----	221A			
			Fargo	-----	229, 250, 270			

[Amended in III (80)-1:  
 Eff. 2-9-81:  
 Poughkeepsie, N.Y.  
 Eff. 7-3-80:  
 Ticonderoga, N.Y. Added  
 Eff. 7-27-81:  
 Grifton, N.C. Added  
 Eff. 6-9-81:  
 Hertford, N.C. Added  
 Eff. 9-18-80:  
 Murphy, N.C. Removed  
 Eff. 2-9-81:  
 Archbold, Ohio Added  
 Eff. 2-9-81:  
 Defiance, Ohio]

Ohio—Continued	Channel No.	Ohio—Continued	Channel No.	Oklahoma—Continued	Channel No.
Gallon	272A	Waverly	265A	Pryor	283
Gallipolis	268	Wellston	244A	Sallisaw	240A
Geneva	285A	Westerville	280A	Sapulpa	265A
Georgetown	249A	West Union	276A	Seminole	288A
Greenville	293	Wilmington	272A	Stillwater	230, 288A
Hamilton	235, 243, 278	Wooster	283	Sulphur	265A
Hillsboro	294	Xenia	237A, 280A	Tablequah	269A
Ironton	296A	Youngstown	227, 255, 266	Tulsa	225, 238, 243, 248, 253, 277
Jackson	249A	Zanesville	224A, 273	Vinita	240A
Jewett	292A	Oklahoma:		Weatherford	247
Johnstown	276A	Ada	227, 244A	Woodward	221A, 228A, 272A
Kent	261A	Altus	228A	Oregon:	
Kenton	237A	Alva	259, 284	Albany	260, 300
Kettering	260	Anadarko	279	Ashland	270, 286
Lancaster	238	Ardmore	221A, 239	Astoria	225
Lima	249A, 271, 285A	Bartlesville	261A	Baker	237A
London	292A	Bethany	285A	Bend	231, 264
Lorain	285A	Bristow	285A	Brookings	237A
Mansfield	287, 291	Broken Arrow	221A	Burns	224A
Marletta	232A	Broken Bow	292A	Coos Bay	252A, 288A
Marion	232A, 295	Chickasha	288A	Coquille	272A
McConnelsville	265A	Clinton	237A, 295	Corvallis	268, 291
Miamisburg	229	Duncan	244A, 272A	Cottage Grove	237A
Middleport	221A	Durant	296A	Enterprise	221A
Middletown	290	Edmond	249A	Eugene	233, 241, 250, 256
Millford	296A	Elk City	243	Gold Beach	224A
Mt. Vernon	229, 252A	Enid	245	Florence	284
Napoleon	276A	Eufaula	272A	Grant's Pass	245, 262
Newark	262, 269A	Frederick	240A	Hermlston	257A
New Lexington	292A	Grove	257A	Hood River	288A
New Philadelphia	240A	Guymon	224A	Klamath Falls	223, 258
Norwalk	237A	Henryetta	258	La Grande	252A
Ottawa	292A	Hobart	290	Lakeview	228A
Oxford	249A	Hugo	237A	Lebanon	279
Piqua	239	Idabel	244A	Lincoln City	244A
Plymouth	261A	Lawton	237A, 251, 268	Medford	229, 237A
Port Clinton	233	Madill	285A	Newport	273
Portsmouth	257A, 281	McAlester	267	North Bend	265A
Salem	286	Miami	265A	Ontario	226, 241
Sandusky	249A, 274	Muskogee	295	Oregon City	294
Sidney	288A	Norman	292A	Pendleton	278, 299
Springfield	264, 275	Nowata	232A	Portland	222,
Steubenville	278	Oklahoma City	223,		229, 238, 246, 253, 258, 262, 266,
Tiffin	279		234, 241, 255, 263, 270, 274, 281, 299		270, 277
Toledo	223,	Okmulgee	232A	Prineville	237A
	252A, 260, 268, 272A, 284, 288A	Oologah	291	Redmond	224A
Upper Sandusky	240A	Pauls Valley	249A	Roseburg	276A
Urbana	269A	Pawhuska	272A	Salem	286
Van Wert	255	Ponca City	257A, 265A		
Wapakoneta	221A	Poteau	250, 297		
Wash. Ct. House	288A				

[Amended in III(80)-1:

*Eff. 4-13-81:*

*Geneva, Ohio Added*

*Eff. 3-3-81:*

*Lawton, Okla.*

*Eff. 4-6-81:*

*Woodward, Okla.*

*Eff. 3-20-80:*

*Ashland, Oreg.]*

Oregon—Continued	Channel No.	Pennsylvania—Continued	Channel No.	Rhode Island:	Channel No.
Springfield .....	226	Lebanon .....	261A	Newport .....	296A
Sweet Home .....	296A	Lewistown .....	240A, 288A	Providence ...	222, 231, 238, 268, 286
The Dalles .....	249A, 283	Linesville .....	269A	Westerly .....	279
Tillamook .....	281	Lock Haven .....	221A	Woonsocket .....	292A
Toledo .....	296A	Martinsburg .....	224A		
<b>Pennsylvania:</b>		Meadville .....	262	<b>South Carolina:</b>	
Allentown .....	264, 281	Media .....	262	Alken .....	240A, 257A
Altoona .....	251, 261A, 285A	Mercersburg .....	221A	Allendale .....	228A
Beaver Falls .....	294	Mifflinburg .....	252A	Anderson .....	266, 297
Bedford .....	265A	Mifflintown .....	296A	Bamberg .....	224A
Bellwood .....	280A	Milton .....	265A	Barnwell .....	269A
Bethlehem .....	236	Montrose .....	243	Batesburg .....	221A
Bloomsburg .....	293	Nanticoke .....	221A	Beaufort .....	254, 259
Boyetown .....	298	New Kensington-Tarentum .....	264	Camden .....	232A
Braddock .....	245	North East .....	265A	Cayce .....	244A
Bradford .....	252A	Oil City .....	253	Charleston .....	236, 245, 278
Brookville .....	240A	Palmyra .....	221A	Cheraw .....	276A
Butler .....	249A	Philadelphia .....	223,	Chester .....	257A
Canton .....	261A	227, 231, 239, 243, 251, 255,		Columbia .....	228A,
Carbondale .....	232A	266, 271, 275, 283, 287, 291,		250, 261A, 276A, 284	
Carlisle .....	228A, 272A	Pittsburgh .....	225, 229, 233,	Conway .....	281
Central City .....	269A	241, 259, 268, 273, 284, 290, 300		Dillon .....	225
Chambersburg .....	236	Pittston .....	272A	Easley .....	280A
Charleroi .....	252A	Pottsville .....	270	Florence .....	288A, 292A
Clearfield .....	228A	Punxsutawney .....	288A	Gaffney .....	287
Columbia .....	224A	Reading .....	273	Georgetown .....	249A, 292A
Connellsville .....	280A	Red Lion .....	241	Greenville .....	223, 229, 233
Coudersport .....	244A	Saegertown .....	232A	Greenwood .....	244A
Cresson .....	232A	St. Marys .....	232A	Hampton .....	276A
Danville .....	244A	Sayre .....	272A	Hilton Head Island .....	288A, 292A
Dubois .....	271, 297	Scranton .....	267, 285A, 296A	Honea Path .....	276A
Easton .....	241, 260	Shamokin .....	237A	Irmo .....	272A
Ebensburg .....	256	Sharon .....	275, 280A	Kingstree .....	252A
Elizabethtown .....	294	Sharpsville .....	240A	Lake City .....	261A
Ellwood City .....	221A	Shenandoah .....	288A	Lancaster .....	296A
Emporium .....	224A	Shippensburg .....	232A	Laurens .....	263
Ephrata .....	286	Somerset .....	249A	Manning .....	221A
Erle .....	260, 272A, 279, 292A	South Williamsport .....	257A	Marion .....	232A
Franklin .....	257A	State College .....	244A, 276A	Moncks Corner .....	288A
Gettysburg .....	299	Stroudsburg .....	228A	Mullins .....	296A
Greensburg .....	296A	Sunbury .....	231	Myrtle Beach .....	221A, 269A
Greenville .....	296A	Towanda .....	237A	North Charleston .....	273
Grove City .....	236	Tyrone .....	266	North Myrtle Beach .....	288A
Harrisburg .....	235, 247, 257A, 281	Uniontown .....	257A	Orangeburg .....	280A, 294
Hazleton .....	250	Warren .....	222, 276A	Pageland .....	272A
Honesdale .....	237A	Washington .....	237A		
Huntingdon .....	292A	Waynesboro .....	268		
Indiana .....	276A	Waynesburg .....	276A		
Jenkintown .....	280A	Wellsboro .....	283		
Jersey Shore .....	249A	White Haven .....	276A		
Johnstown .....	221A, 238, 243	Wilkes-Barre .....	225, 253		
Kane .....	280A	Williamsport .....	274, 286		
Lancaster .....	233, 245, 267	York .....	253, 277, 289		

[Amended in III (80)-1:

- Eff. 5-4-81:*  
Bradford, Pa.
- Eff. 3-3-81:*  
The Dallas, Oreg.
- Eff. 9-15-80:*  
Mt. Vernon, OH.
- Eff. 5-4-81:*  
Kane, Lewistown, and Warren, Pa.
- Eff. 5-4-81:*  
Mifflintown, Pa. Added
- Eff. 3-23-81:*  
Allendale, S.C. Added
- Eff. 3-24-81:*  
Beaufort, S.C.
- Eff. 8-7-81:*  
Hilton Head Island, S.C.
- Eff. 7-20-81:*  
Irmo, S.C. Added]

South Carolina—Continued		Tennessee—Continued		Texas—Continued	
	Channel No.		Channel No.		Channel No.
Ridgeland	285A	Greeneville	235	Andrews	288A
St. George	298	Harriman	224A	Arlington	235
Seneca	251	Henderson	240A	Atlanta	257A
Spartanburg	255	Humboldt	272A	Austin	229, 238, 252A, 264, 272A
Summerville	228A	Huntingdon	265A	Ballinger	276A
Sumter	207	Jackson	276A, 281	Bandera	252A
Surfside Beach	276A	Jamestown	280A	Bay City	245
Walterboro	265A	Jefferson City	257A	Beaumont	231, 236, 248, 299
South Dakota:		Johnson City	268	Beeville	285A
Aberdeen	231, 235	Kingsport	253, 285A	Belton	292A
Belle Fourche	240A	Knoxville	248, 278, 299	Big Lake	252A
Brookings	232A	Lafayette	257A	Big Spring	237A
Deadwood	226, 236	LaFollette	285A	Bishop	296A
Gregory	268	Lawrenceburg	240A	Bonham	252A
Hot Springs	244A	Lebanon	297	Borger	282
Huron	221A	Lenoir City	228A	Brady	237A
Madison	276A	Lewisburg	232A	Breckenridge	228A
Milbank	282	Lexington	257A	Brenham	202A
Mitchell	290, 297	Livingston	240A	Bridgeport	244A
Mobridge	258	Lobelville	232A	Brownfield	280A
Pierre	224A, 237A	Manchester	250	Brownsville	258, 262
Rapid City	230, 250, 262	Martin	269A	Brownwood	257A, 268, 281
Sioux Falls	223, 228A, 243, 247, 284	McKenzie	295	Bryan	252A, 285A
Vermillion	272A	McMinnville	280A	Burkburnett	284
Watertown	241, 245	Memphis	246, 259, 266, 274, 283, 290	Burnet	296A
Winnier	229	Milan	222	Cameron	269A
Yankton	226, 281	Morristown	240A	Canadlan	276A
Tennessee:		Murfreesboro	242	Canyon	296A
Athens	269A	Nashville	225, 238, 250, 277, 290	Carrizo Springs	228A
Bolivar	244A	Onk Ridge	232A, 262C	Carthage	255
Bristol	245	Onelda	288A	Center	272A
Camden	252A	Parla	288A	Childress	240A
Carthage	272A	Pulaski	252A	Cleveland	295
Centerville	244A	Red Bank City	232A	Coleman	296A
Chattanooga	222, 243, 288A, 293	Ripley	237A	College Station	221A
Clarksville	300	Savannah	228A, 269A	Colorado City	292A
Cleveland	237A	Sevierville	271	Columbus	252A
Clinton	237A	Shelbyville	275	Comanche	282A
Columbia	269A	Smithville	269A	Commerce	221A
Cookeville	232A, 252A	Soddy Daisy	272A	Copperas Cove	276A
Covington	228A	Sparta	288A	Corpus Christi	230, 238, 243, 256, 260
Crossville	257A	Springfield	232A	Corsicana	300
Dayton	285A	Sweetwater	252A	Cotulla	249A
Dickson	272A	Trenton	249A	Crane	265A
Donelson	221A	Tullahoma	227	Crockett	224A
Dyersburg	261A	Union City	285A		
Elizabethton	257A	Waverly	285A		
Erwin	280A	Texas:			
Etowah	276A	Abilene	257A, 264, 286, 300		
Fayetteville	288A	Alice	221A, 272A		
Franklin	261A	Alpine	224A		
Gallatin	283	Alvin	271		
Gatlinburg	288A	Amarillo	226, 231, 250, 254, 270		
Germantown	232A				

<sup>1</sup> Effective 3 a.m. local time, June 1, 1982 (concurrently with the expiration of the outstanding license for FM Station KHLS on Channel 241 at Blytheville, Ark.), or such earlier date as FM Station KHLS may, upon its request, cease operation on Channel 241 at Blytheville.

[Amended in III (80)-1:

- Eff. 3-24-81:  
Ridgeland, S.O. Added
- Eff. 3-23-81:  
Milbank, S.D. Added
- Eff. 12-26-80:  
Yankton, S.D.
- Eff. 6-2-80:  
Bandera, Tex. Added
- Eff. 7-11-80:  
Burkburnett and Granburg, Tex. Added
- Eff. 5-23-80:  
Carthage, Tex. Added
- Eff. 6-6-80:  
Commerce, Tex. Added]

Texas—Continued		Channel No.	Texas—Continued		Channel No.	Texas—Continued		Channel No.
Crystal City	-----	272A	Kilgore	-----	240A	Quannah	-----	265A
Cuero	-----	249A	Killeen	-----	227	Ralls	-----	252A
Dalhart	-----	240A	Kingsville	-----	224A, 249A	Raymondville	-----	269A
Dallas	-----	223,	La Grange	-----	285A	Refugio	-----	292A
250, 254, 262, 266, 275, 279, 283, 287			Luke Jackson	-----	297	Rio Grande City	-----	276A
Del Rio	-----	232A	Lamesa	-----	262, 284	Rockport	-----	272A
Denison	-----	269A	Lampasas	-----	257A	Roma-Los Saenz	-----	249A
Denton	-----	291	Laredo	-----	224A, 235, 251	Rosenberg	-----	285A
Devine	-----	221A	Levelland	-----	288A	Rusk	-----	249A
Dibell	-----	238	Livingston	-----	221A	San Angelo	-----	225, 230, 234, 248
Dumas	-----	237A	Llano	-----	285A	San Antonio	-----	225,
Eagle Pass	-----	224A	Lockhart	-----	234	241, 247, 258, 262, 270, 274, 283, 298		
Eastland	-----	244A	Longview	-----	289	San Marcos	-----	279
Edinburg	-----	281, 300	Lubbock	-----	229, 233, 242, 258, 266, 273	San Saba	-----	244A
El Paso	-----	222,	Lufkin	-----	257A, 286	Seguin	-----	287
226, 230, 234, 238, 242, 248, 260, 271			Malakoff	-----	240A	Seminole	-----	292A
Fabens	-----	276A	Marfa	-----	228A	Seymour	-----	232A
Falfurrias	-----	292A	Marlin	-----	244A	Shamrock	-----	224A
Farwell	-----	252A	Marshall	-----	280A	Sherman	-----	244A
Floresville	-----	232A	Mathis	-----	252A	Silsbee	-----	269A
Floydada	-----	237A	McAllen	-----	245, 253	Sinton	-----	267, 277
Fort Stockton	-----	232A	McCamey	-----	237A	Slaton	-----	224A
Fort Worth	-----	230,	McKinney	-----	237A	Snyder	-----	269A
242, 246, 258, 271, 298			Memphis	-----	279	Sonora	-----	221A
Fredericksburg	-----	266	Mercedes	-----	292A	Spearman	-----	252A
Freeport	-----	273	Merkel	-----	272A	Stamford	-----	221A
Freer	-----	240A	Mexia	-----	285A	Stephenville	-----	252A
Gainesville	-----	233	Midland	-----	222, 227, 277	Sulphur Springs	-----	240A
Galveston	-----	293	Mineola	-----	244A	Sweetwater	-----	244A
Gatesville	-----	252A	Mineral Wells	-----	240A	Taft	-----	288A
Georgetown	-----	244A	Mission	-----	288A	Taylor	-----	221A
Gilmer	-----	237A	Monahans	-----	260, 271	Temple	-----	285A
Gonzales	-----	292A	Mt. Pleasant	-----	264	Terrell	-----	296A
Graham	-----	296A	Muleshoe	-----	276A	Terrell Hills	-----	292A
Granbury	-----	294	Nacogdoches	-----	221A, 277	Texarkana	-----	251, 273
Greenville	-----	228A	Nederland	-----	221A	Tulia	-----	285A
Hamilton	-----	221A	New Boston	-----	240A	Tyler	-----	221A, 226, 268
Harlingen	-----	233, 241	New Braunfels	-----	221A	Uvalde	-----	285A
Haskell	-----	238	Odessa	-----	245, 250, 256	Vernon	-----	272A
Hebbronville	-----	269A	Ornuge	-----	283, 291	Victoria	-----	236, 254, 300
Henderson	-----	261A	Ozona	-----	232A	Waco	-----	238, 248, 260, *296A
Hereford	-----	292A	Palestine	-----	232A, 252A	Weslaco	-----	285A
Hillsboro	-----	273	Pampa	-----	262	Whitehouse	-----	257A
Houston	-----	229,	Paris	-----	257A	Wichita Falls	-----	225, 260, 277
233, 239, 243, 250, 256,			Pasadena	-----	223	Winnsboro	-----	285A
262, 266, 275, 281, 289			Pearsall	-----	237A	Yoakum	-----	272A
Huntsville	-----	269A	Pecos	-----	252A	Utah:		
Jacksonville	-----	293	Perryton	-----	240A	Blanding	-----	221A
Jasper	-----	272A	Plainview	-----	247	Bountiful	-----	258
Junction	-----	228A	Pleasanton	-----	252A	Brigham City	-----	296A
Kenedy-Karnes	-----	221A	Port Arthur	-----	227, 253	Cedar City	-----	223, 235
Kermit	-----	292A	Port Lavaca	-----	240A			
Kerrville	-----	232A	Premont	-----	285A			

[Amended in III (80)-1:

Eff. 9-19-80:

Lockhart, Tex. Added

Eff. 7-3-80:

Malakoff, Tex. Added

Eff. 5-23-80:

Nederland, Tex. Added

Eff. 9-8-80:

Roma-Los Saenz, Tex. Added

Eff. 5-23-80:

Whitehouse, Tex. Added

Eff. 3-23-81:

Bountiful, Utah]

Utah—Continued		Channel No.	Virginia—Continued		Channel No.	Washington :		Channel No.
Centerville	-----	288A	Cititwood	-----	272A	Aberdeen	-----	257A, 284
Logan	-----	225, 233	Colonial Beach	-----	240A	Bellingham	-----	225, 282
Manti	-----	286	Covington	-----	265A	Bremerton	-----	295
Moab	-----	244A	Crewe	-----	284	Centralla	-----	275
Ogden	-----	238, 250, 266, 270	Crozet	-----	272A	Chelan	-----	228A
Orem	-----	298	Culpepper	-----	276A	Clarkston	-----	231
Price	-----	252A	Danville	-----	277	Colfax	-----	272A
Provo	-----	235, 241	Exmore	-----	298	Colville	-----	221A
Richfield	-----	229	Farmville	-----	239	East Wenatchee	-----	249A
Roy	-----	300	Fredericksburg	-----	227, 268	Edmonds	-----	287
St. George	-----	228A	Front Royal	-----	237A, 257A	Ellensburg	-----	237A
Salt Lake City	-----	227,	Galax	-----	251	Ephrata	-----	240A
	-----	231, 246, 254, 262, 278, 282	Gretna	-----	292A	Forks	-----	280A
Smithfield	-----	280A	Grundy	-----	249A	Grand Coulee	-----	253, 266
Spanish Fork	-----	292A	Hampton	-----	267	Hoquiam	-----	237A
Tooele	-----	221A	Harrisonburg	-----	264, 282	Kennewick	-----	287
Vernal	-----	224A	Hopewell	-----	221A	Longview	-----	288A
West Jordan	-----	274	Kilmarnock	-----	269A	Lynden	-----	293
Vermont :			Lawrenceville	-----	288A	Moses Lake	-----	257A, 262
Barre	-----	296A	Lexington	-----	244A	Olympia	-----	241
Bellows Falls	-----	296A	Louisa	-----	288A	Omak	-----	224A
Bennington	-----	232A	Luray	-----	280A, 292A	Opportunity	-----	241
Brattleboro	-----	224A, 244A	Lynchburg	-----	252A, 261A, 269A	Othella	-----	249A
Burlington	-----	225, 255, *300	Manassas	-----	294	Prosser	-----	269A
Lyndon	-----	252A	Marion	-----	230, 272A	Pullman	-----	285A
Manchester	-----	274	Martinsville	-----	242	Quincy	-----	276A
Middlebury	-----	265A	Mechanicsville	-----	224A	Richland	-----	235, 274, 292A
Montpelier	-----	244A, 276A	Norfolk-Newport News	-----	239,	Seattle	-----	223,
Randolph	-----	272A		-----	247, 254, 259, 263, 275, 283,		-----	227, 231, 235, 239, 243, 251, 255,
Rutland	-----	1, 2 246, 1 251		-----	287, 295.		-----	260, 264, 268, 273, 299.
St. Albans	-----	272A	Norton	-----	292A	Spokane	-----	225,
South Burlington	-----	237A	Orange	-----	244A		-----	229, 251, 255, 260, 289, 300
Springfield	-----	228A	Pennington Gap	-----	288A	Sunnyside	-----	244A
Waterbury	-----	269A	Petersburg	-----	237A, 257A	Tacoma	-----	247, 279, 291
White River Junction	-----	237A	Pulaski	-----	296A	Toppenish	-----	224A
Virginia :			Radford	-----	269A	Walla Walla	-----	227, 239, 246
Abingdon	-----	224A	Richlands	-----	288A	Wenatchee	-----	271, 285A
Altavista	-----	288A	Richmond	-----	233, 251, 271, 279, 293	Yakima	-----	233, 252A, 281, 297
Amherst	-----	300	Roanoke	-----	222, 235, 256	West Virginia :		
Appomattox	-----	296A	Salem	-----	228A	Bath (Berkeley Springs)	-----	228A
Arlington	-----	286	South Boston	-----	248	Beckley	-----	258, 279
Ashland	-----	261A	Staunton	-----	228A, 259	Bluefield	-----	283, 292A
Berryville	-----	288A	Suffolk	-----	225, 295	Buckhannon	-----	228A
Big Stone Gap	-----	228A	Tappahannock	-----	288A	Charleston	-----	241, 248, 260, 274
Blacksburg	-----	285A	Tasley	-----	277	Charles Town	-----	252A
Blackstone	-----	228A	Tazewell	-----	261A	Clarksburg	-----	224A, 285A, 293
Cape Charles	-----	241	Warrenton	-----	232A, 299	Elkins	-----	237A
Charlottesville	-----	224A, 237A, 248	Warsaw	-----	265A	Fairmont	-----	250
Chesapeake-Portsmouth-Virginia Beach	-----	235	Williamsburg	-----	243			
Clarksville	-----	252A	Winchester	-----	223, 273			
Clifton Forge	-----	280A	Woodbridge	-----	290			
			Yorktown	-----	231			

<sup>1</sup> Channels 246 and 251 at Rutland, Vermont, are regarded as Class B assignments.

[Amended in III(80)-1:

Eff. 3-23-81:  
Centerville and West Jordan, Utah Added

Eff. 3-24-81:  
Orem, Utah

Eff. 4-20-81:  
Roy, Utah Added

Eff. 7-20-81;  
Smithfield, Utah Added

Eff. 11-17-80:  
Lyndon, Vt. Added

Eff. 2-9-81:  
Manchester, Vt. Added

Eff. 11-17-80:  
Olympia, Wash. Added

Eff. 3-2-81:  
Elkins, W. Va. Added]

West Virginia—Continued		Channel No.	West Virginia—Continued		Channel No.	Wisconsin—Continued		Channel No.
Grafton	-----	240A	Weston	-----	272A	Kaukauna	-----	285A
Hinton	-----	272A	Westover	-----	205A	Kenosha	-----	236, 245
Huntington	-----	263, 277, 300	Wheeling	-----	247, 254, 298	Kewaunee	-----	224A
Hurricane	-----	292A	Williamson	-----	243	La Crosse	-----	227, 240A, 285A
Keyser	-----	231	Wisconsin:			Ladysmith	-----	279
Lewisburg	-----	288A	Antigo	-----	287	Lancaster	-----	249A
Logan	-----	270	Appleton	-----	289	Madison	-----	251, 268, 273, 281
Martinsburg	-----	248	Ashland	-----	240A	Manitowoc	-----	221A, 272A
Montgomery	-----	296A	Beaver Dam	-----	237A	Marinette	-----	236
Morgantown	-----	261A, 270	Beloit	-----	237A	Marshfield	-----	293
Moundsville	-----	288A	Berlin	-----	272A	Mauston	-----	221A
Mullens	-----	224A	Chippewa Falls	-----	288A	Medford	-----	257A
New Martinsville	-----	280A	Clintonville	-----	221A	Menomonee Falls	-----	252A
Oak Hill	-----	231, 290	Crandon	-----	244A	Menomonie	-----	221A
Parkersburg	-----	230, 257A, 276A	Dodgeville	-----	257A	Merrill	-----	228A
Petersburg	-----	269A	Durand	-----	240A	Middleton	-----	292A
Princeton	-----	240A, 265A	Engle River	-----	232A	Milwaukee	-----	227, 233, 239, 243, 247, 256, 271, 275, 299
Rainelle	-----	244A	Eau Claire	-----	231, 264, 283	Minocqua	-----	240A
Ravenswood	-----	272A	Fond du Lac	-----	296A	Monroe	-----	229
Ripley	-----	252A	Fort Atkinson	-----	297	Neenah-Menasha	-----	232A, 261A
Ronceverte	-----	249A	Green Bay	-----	240A, 253, 266	Neillsville	-----	298
St. Albans	-----	286	Greenfield Township	-----	235	New London	-----	228A
St. Marys	-----	269A	Hartford	-----	285A			
Summersville	-----	225	Hayward	-----	221A, 269A			
			Janesville	-----	260			

[Amended in III(80)-1:

- Eff. 3-23-81:*  
Grafton, W. Va.
- Eff. 3-24-81:*  
Lewisburg, W. Va. Added
- Eff. 11-5-80:*  
Petersburg, W. Va. Added
- Eff. 10-3-80:*  
Ravenswood, W. Va. Added
- Eff. 3-24-81:*  
Ronceverte, W. Va.
- Eff. 3-23-81:*  
Westover, W. Va. Added
- Eff. 4-20-81:*  
Clintonville, Wisc. Added
- Eff. 10-24-80:*  
Crandon, Wisc. Added]

Wisconsin—Continued		Wisconsin—Continued		Puerto Rico—Continued	
	Channel No.		Channel No.		Channel No.
New Richmond	296A	West Bend	223	Aguadilla	225, 262
Oconto	296A	West Salem	261A	Arecibo	293, 297
Oshkosh	244A, 280A	Whitehall	272A	Bayamon	234, 264
Park Falls	252A	Wisconsin Dells	296A	Cabo Rojo	221A
Platteville	296A	Wisconsin Rapids	277	Caguas	277
Port Washington	261A	Wyoming:		Cayey	249A
Portare	261A	Buffalo	224A	Coamo	223
Prairie Du Chien	232A	Casper	233, 238	Fajardo	243
Racine	221A, 264	Cheyenne	250, 264, 292A	Guayama	295
Reedsburg	285A	Cody	250	Humacao	299
Rhineland	248, 1 262	Douglas	257A	Isabella	268
Rice Lake	242, 249A	Evanston	292A	Luquillo	221A
Richland Center	265A	Gillette	245, 264	Manati	245
Ripon	240A	Jackson	245	Mayaguez	231, 248, 256
River Falls	292A	Lander	248	Ponce	227, 266, 270, 280
Sauk City	244A	Laramie	236, 275	Quebradillas	252A
Shawano	257A, 274	New Castle	257A	Rio Piedras	239
Sheboygan	249A	Powell	225	San German	236
Shell Lake	237A	Rawlins	224A	San Juan	229, 253, 260, 273, 284, 289
Sparta	246	Riverton	230	Utuaado	281
Stevens Point	244A, 250	Rock Springs	243, 283	Vieques	255
Sturgeon Bay	230, 261A	Saratoga	260	Yauco	241
Sun Prairie	221A	Sheridan	235, 243	Virgin Islands:	
Tomah	255	Thermopolls	252A, 269A	Charlotte Amalle	226, 250
Tomahawk	224A	Torrington	252A	Christiansted	258, 291
Viroqua	272A	Wheatland	269A		
Washburn	290	Worland	240A		
Watertown	231	U.S. TERRITORIES AND POSSESSIONS			
Waukesha	291	Agana	230, 238		
Waupaca	224A	Puerto Rico:			
Waupun	257A	Adjuntas	275		
Wausau	238, 270, 300	Aguada	288A		
Wauwatosa	279				

<sup>1</sup> Effective at 3:00 a.m. local time December 1, 1982, (concurrently with the expiration of the outstanding license for FM Station WRHN on Channel 300 at Rhineland, Wisconsin) or such earlier date as FM Station WRHN may consent to operate on Channel 262.

**[Amended in III(80)-1:**  
**Ef. 8-7-81:**  
*Rhineland, Tomahawk, Washburn, and Wausau, Wisc.*  
**Ef. 3-23-81:**  
*Rock Springs, Wy.]*



### § 73.203 Availability of channels.

(a) Subject to the provisions of paragraph (b) of this section, applications may be filed to construct FM broadcast stations only on the channels assigned in the Table of Assignments (§ 73.202(b)) and only in communities listed therein. Applications which fail to comply with this requirement, whether or not accompanied by a petition to amend the Table, will not be accepted for filing: *Provided, however*, That applications specifying channels which accord with publicly announced Commission orders changing the table of assignments will be accepted for filing even though such applications are tendered before the effective dates of such channel changes.

(b) A channel assigned to a community listed in the Table of Assignments is available upon application in any unlisted community which is located within 10 miles of the listed community if the channel requested is a Class A channel and 15 miles if the channel is a Class B/C channel, provided no other channel in the listed community has been similarly assigned to another community and provided further that the unlisted community has not already removed a channel from any other listed community. Where channels are assigned to two or more communities listed in combination in the Table of Assignments the provisions of this paragraph shall apply separately to each community so listed. The distance between communities shall be determined by the distance between the respective coordinates thereof as set forth in the publication of the United States Department of Commerce entitled "Air Line Distances Between Cities in the United States". (This publication may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.) If said publication does not contain the coordinates of either or both communities, the coordinates of the main post office in either or both of the communities shall be used. The method to be followed in making the measurements is set forth in § 73.208(c).

### § 73.204 International agreements and other restrictions on use of channels.

See §§ 73.220 and 73.1650.

### § 73.205 Zones.

For the purpose of allocation and assignment, the United States is divided into three zones as follows:

(a) Zone I consists of that portion of the United States located within the confines of the following lines drawn on the United States Albers Equal Area Projection Map (based on standard parallels  $29\frac{1}{2}^\circ$  and  $45\frac{1}{2}^\circ$ ; North American datum): Beginning at the most easterly point on the State boundary line between North Carolina and Virginia; thence in a straight line to a point on the Virginia-West Virginia boundary line located at north latitude  $37^\circ 49'$  and west longitude  $80^\circ 12' 30''$ ; thence westerly along the southern boundary lines of the States of West Virginia, Ohio, Indiana, and Illinois to a point at the junction of the Illinois,

Kentucky, and Missouri State boundary lines; thence northerly along the western boundary line of the State of Illinois to a point at the junction of the Illinois, Iowa, and Wisconsin State boundary lines; thence easterly along the northern State boundary line of Illinois to the 90th meridian; thence north along this meridian to the  $43.5^\circ$  parallel; thence east along this parallel to the United States-Canada border; thence southerly and following that border until it again intersects the  $43.5^\circ$  parallel; thence east along this parallel to the 71st meridian; thence in a straight line to the intersection of the 69th meridian and the 45th parallel; thence east along the 45th parallel to the Atlantic Ocean. When any of the above lines pass through a city, the city shall be considered to be located in Zone I. (See Figure 1 of § 73.699.)

(b) Zone I-A consists of Puerto Rico, the Virgin Islands and that portion of the State of California which is located south of the 40th parallel.

(c) Zone II consists of Alaska, Hawaii and the rest of the United States which is not located in either Zone I or Zone I-A.

### § 73.206 Classes of commercial channels, and stations operating thereon.

(a) *Class A channels and stations.* (1) Except as provided in § 73.204, the following frequencies are designated as Class A channels and are assigned for use, in all zones, by Class A stations only:

<i>Channel (MHz):</i>	<i>Channel No.</i>	<i>Frequency (MHz):</i>	<i>Channel No.</i>
92.1-----	221	100.1-----	261
92.7-----	224	100.9-----	265
93.5-----	228	101.7-----	269
94.3-----	232	102.3-----	272
95.3-----	237	103.1-----	276
95.9-----	240	103.9-----	280
96.7-----	244	104.9-----	285
97.7-----	249	105.5-----	288
98.3-----	252	106.3-----	292
99.3-----	257	107.1-----	296

(2) A Class A station is a station which operates on a Class A channel, and is designed to render service to a relatively small community, city, or town, and the surrounding rural area.

(3) A Class A station will not be authorized to operate with effective radiated power greater than 3 kilowatts (4.8 dBk), and the coverage of a Class A station shall not exceed that obtained from 3 kilowatts effective radiated power and antenna height above average terrain of 300 feet. For provisions concerning minimum facilities, and concerning reduction in power where antenna height above average terrain exceeds 300 feet, see § 73.211.

(b) *Class B-C channels and Class B and Class C stations.* (1) Except for the channels specified in paragraph (a)(1) of this section, all of the channels listed in § 73.201 from 222 through 300 (92.3 through 107.9 MHz) are classified as Class B-C channels, and (subject to the restrictions set forth in § 73.204) are assigned for use in Zones I and I-A by Class B stations only, and for use in Zone II by Class C stations only

(there are no Class C stations in Zones I or I-A and no Class B stations in Zone II).

(2) A Class B station is a station which operates on a Class B-C channel in Zone I or Zone I-A, and is designed to render service to a sizeable community, city, or town, or to the principal city or cities of an urbanized area, and to the surrounding area.

(3) With respect to Class B stations authorized after September 10, 1962, no such station will be authorized with effective radiated power greater than 50 kilowatts (17 dBk), and the coverage of a Class B station authorized after that date shall not exceed that obtained from 50 kilowatts effective radiated power and 500 feet antenna height above average terrain. For provisions concerning minimum power, and concerning reduction in power where antenna height above average terrain exceeds 500 feet, see § 73.211.

(4) A Class C station is a station which operates on a Class B-C channel in Zone II, and is designed to render service to a community, city, or town, and large surrounding area.

(5) With respect to Class C stations authorized after September 10, 1962, no such station will be authorized with effective radiated power greater than 100 kilowatts (20 dBk), and the coverage of a Class C stations authorized after that date shall not exceed that obtained from 100 kilowatts effective radiated power and antenna height above average terrain of 2,000 feet. For provisions concerning minimum power, and reduction in power where antenna height above average terrain exceeds 2,000 feet, see § 73.211.

§ 73.207 Minimum distance separations between stations.

(a) Petitions to amend the Table of Assignments (§ 73.202(b)) (other than those expressly requesting amendment of this Section or § 73.205) will be dismissed and no application for a new station, or change in the channel or location of an existing station, other than a Class D (secondary) station, will be accepted for filing, unless the proposed facilities will be located at least as far from the transmitter sites of other co-channel and adjacent-channel stations (both existing and proposed) as the distances in miles specified in this paragraph. Proposed stations of the respective classes shown in the left-hand column of the following table shall be located no less than the distance shown from co-channel stations and first adjacent-channel stations (200 kHz removed) and second and third

adjacent-channel stations (400 and 600 kHz removed) of the classes shown in the remaining columns of the table. The distances shown between stations of different classes apply regardless of which is the proposed station under consideration (e.g., distances shown from a new Class A station to an existing Class C station are also the distances between a new Class C and an existing Class A station). The distances between Class B and Class C stations apply only across zone lines. The adjacent-channel spacings listed also apply:

(b) The zone in which the transmitter of an FM station is located or proposed to be located determines the applicable rules with respect to minimum required spacings.

§ 73.208 Reference points and distance computations.

(a) In considering petitions to amend the Table of Assignments (§ 73.202(b)), the following reference points shall be used by the Commission in determining separations between communities:

(1) Where transmitter sites for the pertinent channels have been authorized in communities involved in a petition to amend the Table of Assignments, separations between such communities shall be determined by the distance between the coordinates of the authorized transmitter sites in the respective communities as set forth in the Commission's authorizations therefor.

(2) Where an authorized transmitter site is available for use as a reference point in one community but not in the other for the pertinent channels, separations shall be determined by the distance between the coordinates of the transmitter site as set forth in the Commission's authorization therefor and the coordinates of the other community as set forth in the publication of the United States Department of Commerce entitled "Air Line Distances Between Cities in the United States." If said publication does not contain the coordinates for said other community, the coordinates of the main post office thereof shall be used.

(3) Where no authorized transmitter sites are available for use as reference points in both communities for the pertinent channels, the distance between the two communities listed in the above publication shall be used. If said publication does not contain such distance, the separation between the two communities shall be determined by the distance between the coordinates thereof as set forth in said pub-

CLASS OF STATION AND FREQUENCY SEPARATION (kHz)

Class of station	Class A				Class B				Class C				10-watt educational				
	Co-Ch.	200	400	600	Co-Ch.	200	400	600	Co-Ch.	200	400	600	Co-Ch.	200	400	600	
A .....	65	40	15	15	.....	65	40	40	.....	105	65	65	.....	30	15	15	
B .....	.....	.....	.....	.....	.....	150	105	40	40	.....	170	135	65	65	.....	40	40
C .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	180	150	65	65	.....	.....	65	65
10-watt educational .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

NOTE: Stations or assignments separated in frequency by 10.6 or 10.8 MHz (53 or 54 channels) will not be authorized unless they conform to the following separation table:

<i>Class of stations</i>	<i>Required spacing in miles</i>
A to A .....	5
B to A .....	10
B to B .....	15
C to A .....	20
C to B .....	25
C to C .....	30

Under the United States-Mexican FM Broadcasting Agreement, the following additional mileage separations to Mexican channel assignments and authorization must be adhered to:

Class to class	Co-channel	1st adjacent	2d adjacent	3d adjacent
A to C .....	130			
A to B .....	110			
D to C .....	125	95	65	65
D to B .....	105	60	40	40
D to A .....	60	30	15	15
D to D .....	11	6	3	3

And for stations or assignments separated in frequency by 10.6 or 10.8 MHz (53 or 54 channels), the following mileage separations must be conformed to:

<i>Class of stations</i>	<i>Required spacing in miles</i>
C to D .....	15
B to D .....	10
A to D .....	5
D to D .....	2

These mileage separations also apply to noncommercial educational authorizations in the border area and in the United States adjacent to the border area in order to afford protection to allotments and authorizations in the border area.

lication. Where such coordinates are not contained in said publication, the coordinates of the main post office of said communities shall be used.

(4) Where the distance between the reference point in a community to which a channel is proposed to be assigned and the reference point in another community or communities does not meet the minimum separation requirements of § 73.207, the channel may be assigned to such community upon a showing that a transmitter site is available that would meet the minimum separation requirements of § 73.207 and the minimum field intensity requirements of § 73.315. In such cases, where a station is not authorized in the community or communities to which measurements from the proposed channel assignment must be made pursuant to § 73.207, a showing should also be made that the distance between suitable transmitter sites in such other community or communities and the proposed transmitter site for the new channel meet the Commission's minimum spacing and coverage requirements.

(b) Station separations in licensing proceedings shall be determined by the distance between the coordinates of the proposed transmitter site in one community and

(1) The coordinates of an authorized transmitter site for the pertinent channel in the other community; or where such transmitter site is not available for use as a reference point,

(2) The coordinates of the other community as set forth in the above-described publication of the United States Department of Commerce; or, if not contained therein,

(3) The coordinates of the main post office of such other community.

(4) In addition, where there are pending applications in other communities which, if granted, would have to be considered in determining station separa-

tion, the coordinates of the transmitter sites proposed in such applications must be used to determine whether the requirements with respect to minimum separations between the proposed stations in the respective cities have been met.

(c) The distance between reference points is considered to be the length of the hypotenuse of a right triangle, one side of which is the difference in latitude of the reference points and the other side the difference in longitude of the two reference points, and shall be computed by the method set forth in this paragraph. (This method is appropriate for determining distances up to 220 miles, and for such distances will normally be more accurate than using spherical trigonometry without correction for the spheroidal shape of the earth. However, its accuracy deteriorates rapidly at distances beyond 300 miles and this method should not be used to compute greater distances.)

(1) Determine the difference in latitude and the difference in longitude between the two reference points. Convert these two differences into degrees and decimal parts of a degree in accordance with Table I of § 73.698.

(2) Determine the middle latitude of the two reference points to the nearest second of latitude (average the latitudes of the two points).

(3) Multiply the difference in latitude by the number of miles per degree of latitude difference obtained from Table II of § 73.698 for the appropriate middle latitude (interpolate linearly). This determines the north-south distance in statute miles ( $L_a$ ).

NOTE: In determining necessary distance computations for Alaska, Hawaii, and the Territories, the appropriate mileage per degree may be obtained by linear interpolation of the data given on pages 1246 and 1247 of the tables in publication H.O. No. 9 (Bowditch-American Practical Navigator—1958 Edition) of the U.S. Navy Department, Hydrographic Office. This publication may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.

(4) Multiply the difference in longitude by the number of miles per degree of longitude difference, obtained from Table III of § 73.608, for the appropriate middle latitude (interpolate linearly). This determines the east-west distance in statute miles ( $L_e$ ).

(5) Determine the distance between the two reference points by the square root of the sum of the squares of the distances obtained in subparagraphs (3) and (4) of this paragraph, using sufficient decimal figures to determine the distance to the nearest mile; i.e.,

$$D = (L_n^2 + L_e^2)^{1/2}$$

where:

- D = Distance in statute miles.
- $L_n$  = North-south distance in statute miles.
- $L_e$  = East-west distance in statute miles.

§ 73.209 Protection from interference.

(a) Permittees and licensees of FM broadcast stations are not protected from any interference which may be caused by the grant of a new station, or of authority to modify the facilities of an existing station, in accordance with the provisions of this Subpart. However, they are protected from interference caused by Class D (secondary) noncommercial educational FM stations. (See Section 73.509.)

(b) Except as specified in Section 73.509, the nature and extent of the protection from interference accorded to FM broadcast stations is limited solely to the protection which results from the minimum assignment and station separation requirements and the rules with respect to maximum powers and antenna heights set forth in this Subpart.

(c) When the Commission determines that grant of an application would serve the public interest, convenience, and necessity and the instrument of authorization specifies an antenna location in a designated antenna farm area which results in mileage separations less than those specified in this subpart, FM broadcast station permittees and licensees shall be afforded protection from interference equivalent to the protection afforded under the minimum mileage separations specified in this subpart.

§ 73.210 Station location, main studio location, and program origination.

See §§ 73.1120, 73.1125, 73.1130.

§ 73.211 Power and antenna height requirements.

(a) *Minimum requirements.* (1) Except as provided in paragraph (b) (2) of this section, the minimum effective radiated power shall be:

Class A.....	100 watts (-10 dBk)
Class B.....	5 kW (7 dBk)
Class C.....	25 kW (14 dBk)

(2) No minimum antenna height above average terrain is specified.

(b) *Maximum power and antenna height.* (1) The maximum effective radiated power in any direction

and maximum antenna height for equivalence purposes, shall be as follows for the various classes of stations:

Class	Maximum power	Maximum antenna height (feet above average terrain)
A.....	3 kW (4.8 dBk).....	300
B.....	50 kW (17.0 dBk).....	500
C.....	100 kW (20.0 dBk).....	2,000

(2) Antenna heights may be used exceeding those specified in this paragraph for equivalence purposes, provided effective radiated power is reduced in the amount determined by use of the appropriate curves in Figure 3 of § 73.333. Where, under Figure 3 of § 73.333, effective radiated power must be reduced to an amount less than the normal minimum specified in paragraph (a) (1) of this section for the class of station involved, the effective radiated power determined by Figure 3 of § 73.333 shall be the minimum for the station involved.

(3) In Puerto Rico and the Virgin Islands Class B stations may use antenna heights up to 2,000 feet above average terrain with effective radiated powers up to 25 kW. For antenna heights above 2,000 feet the power shall be reduced so that the station's 1 mV/m contour (located pursuant to Figure 1 of § 73.333) will extend no farther from the station's transmitter than with the facilities of 25 kW and antenna height of 2,000 feet. For powers above 25 kW (up to 50 kW) no antenna heights will be authorized which result in greater coverage by the 1 mV/m contour than that obtained with the facilities of 25 kW and antenna height of 2,000 feet.

(c) *Determination of applicable rules.* The zone in which the transmitter of an FM station is located or proposed to be located determines the applicable rules with respect to the class of station, and thus the minimum and maximum requirements as to facilities.

(d) *Existing stations.* Stations authorized as of September 10, 1962 which do not conform to the requirements of this section, may continue to operate as authorized. For stations operating with facilities in excess of those specified in paragraph (b) of this section, no change in facilities will be authorized which either increases the effective radiated power or extends the location of the 1 mV/m field strength contour beyond that of the present authorization in any direction. The provisions of this section shall not apply to applications to increase facilities for those stations operating with powers less than the minimum powers specified in paragraph (a) of this section.

§ 73.212 Administrative changes in authorizations.

(a) In the issuance of FM broadcast station authorizations, the Commission will specify the trans-

mitter output power and effective radiated power in accordance with the following tabulation:

Power (watts or kW):	Rounded out to nearest figure (watts or kW)
1 to 3.....	.05
3 to 10.....	.1
10 to 30.....	.5
30 to 100.....	1
100 to 300.....	5
300 to 1,000.....	10

(b) Antenna height above average terrain will be specified in accordance with the following tabulation:

Antenna height above average terrain:	Rounded out to nearest figures (feet)
0 to 100.....	1
100 to 300.....	5
Over 300.....	10

**§ 73.213 Stations at spacings below the minimum separations.**

(a) Stations authorized prior to November 16, 1964, and which are separated from other co-channel or adjacent channel stations less than the minimum distances specified in § 73.207 may apply for changes in facilities provided the requested facilities conform with the following table:

FACILITIES TO BE AUTHORIZED FOR SHORT-SPACED FM STATIONS

Class of station	Separation in miles		Facilities authorized	
	Co-channel	First adjacent	Power (kW.)	Antenna height (ft.)
A to A.....	45-65.....	.....	3	300.
A to A.....	40-44.....	.....	2	300.
A to A.....	less than 40.....	.....	1	300.
A to B.....	.....	50-65.....	3	300 Class A.
A to B.....	.....	.....	50	500 Class B.
A to B.....	.....	40-49.....	3	300 Class A.
A to B.....	.....	.....	20	500 Class B.
A to B.....	.....	less than 40.....	3	300 Class A.
A to B.....	.....	.....	10	500 Class B.
A to C.....	.....	80-105.....	3	300 Class A.
A to C.....	.....	.....	100	2,000 Class C.
A to C.....	.....	60-79.....	3	300 Class A.
A to C.....	.....	.....	50	2,000 Class C.
A to C.....	.....	less than 60.....	3	300 Class A.
A to C.....	.....	.....	20	2,000 Class C.
B to B.....	125-150.....	80-105.....	50	500.
B to B.....	100-124.....	65-79.....	20	500.
B to B.....	75-99.....	50-64.....	10	500.
B to B.....	less than 75.....	less than 50.....	5	500.
B to C.....	140-170.....	110-135.....	50	500 Class B.
B to C.....	.....	.....	100	2,000 Class C.
B to C.....	110-139.....	85-109.....	20	500 Class B.
B to C.....	.....	.....	50	2,000 Class C.
B to C.....	90-109.....	60-84.....	10	500 Class B.
B to C.....	.....	.....	20	2,000 Class C.
B to C.....	less than 90.....	less than 60.....	5	500 Class B.
B to C.....	.....	.....	10	2,000 Class C.
C to C.....	150-180.....	125-150.....	100	2,000.
C to C.....	120-149.....	95-124.....	50	2,000.
C to C.....	100-119.....	75-94.....	20	2,000.
C to C.....	less than 100.....	less than 75.....	10	2,000.

(b) Stations authorized facilities in excess of those specified in this section may continue to operate with such facilities.

(c) Stations may elect to operate omnidirectionally with facilities no greater than the least they should be permitted in any direction under paragraph (a) of this section. Greater facilities (up to the maximum

specified in § 73.211(b) for their class) may be used if, by use of a directional antenna, radiation in any direction in which a short separation exists is reduced to no more than that permitted under paragraph (a) of this section. Applications for use of directional antennas must be in conformance with § 73.316(d); in addition, the increase in radiation off the line between the short-spaced stations shall not exceed 2 dB per 10 degrees of azimuth; and in no event shall radiation in any direction exceed the maximum permitted under § 73.211 (b) for the particular class of station.

(d) Stations will be authorized maximum facilities for their class in those directions in which they are short-spaced to other stations on second or third adjacent channels.

(e) The powers listed in the table are the maximums to be authorized. Antenna heights may be used exceeding those specified in the table for equivalence purposes, provided the effective radiated power is reduced in the amount necessary to place the 1 mV/m contour at no greater distance as determined by use of Figure 1 of § 73.333. The antenna height value to be used is that above average terrain and not that in any particular direction. Where antenna heights below 100 feet are encountered (or negative heights) an assumed value of 100 feet above average terrain shall be assumed for the purposes of this paragraph.

(f) The following provisions will govern applications for move of transmitter site:

(1) No application to move will be accepted which creates short spacing to standard spaced stations and assignments less than the distances specified in § 73.207, including second and third adjacent channel separations. This provision applies even if in other respects the application would be acceptable under this paragraph.

(2) Stations short-spaced with respect to other stations under § 73.207 may apply to move transmitter site, even though by the move the separation would be further shortened, under the following conditions and with the following facilities:

(i) Where the short separation is second or third adjacent channel, with any facilities up to the maximum permitted under § 73.211.

(ii) Where the short separation is co-channel or first adjacent channel, stations may apply for facilities up to the maximum for the mileage bracket in which they would fall after the move, as specified in paragraph (a) of this section, or with their present facilities if they are not moving so far as to fall into a lower bracket. (See subdivision (iii) of this subparagraph for further restrictions on very short-spaced stations.)

(iii) The provisions of this subparagraph apply where the resulting separation after the move would be less than: co-channel, 40 miles Class A to Class A, 75 miles Class B to Class B, 90 miles Class B to Class C or vice versa, or 100 miles Class C to Class C; first adjacent channel, 40 miles Class A to Class B or vice versa, 50 miles Class B to Class B, 60 miles Class A

or B to Class C, or vice versa, and 75 miles Class C to Class C. Stations so situated may apply to move and use either their present facilities or no more than those specified for their mileage bracket in paragraph (a) of this section, if the move would not decrease the short distance by more than three miles. If the move would decrease the short distance a greater amount, a station will be permitted no more than the facilities which would give it, in the critical direction, a 1 mV/m contour located no further out than that which would result from using the former location and the maximum facilities specified for the mileage bracket.

**§ 73.214 Cross reference to rules in other parts.**

See § 73.1010.

**§ 73.215 Notification of filing of applications.**

See § 73.1030.

**§ 73.216 Equipment tests.**

See § 73.1610.

**§ 73.217 Program tests.**

See § 73.1620.

**§ 73.218 Normal license period.**

See § 73.1020.

**§ 73.220 Restrictions on use of channels.**

(a) The frequency 89.1 MHz (Channel 206) is reserved in the New York City metropolitan area for use of the United Nations with the equivalent of an antenna height of 500 feet above average terrain and effective radiated power of 20 kilowatts, and the FCC will make no assignments which would cause objectionable interference with such use.

(b) In Alaska, the frequency band 88–100 MHz is allocated exclusively to Government radio services and the non-Government fixed service. The frequencies 87.9 through 99.9 MHz (Channels 200 through 260) will not be assigned in Alaska for use by FM broadcast stations.

(c) In Hawaii, the frequency band 98–108 MHz is allocated for non-broadcast use. The frequencies 98.1 through 107.9 MHz (Channels 251 through 300) will not be assigned in Hawaii for use by FM broadcast stations.

**LICENSING POLICIES**

**§ 73.231 Special rules relating to contracts providing for reservation of time upon sale of a station.**

See § 73.1150.

**§ 73.232 Territorial exclusivity.**

No licensee of an FM broadcast station shall have any arrangement with a network organization which prevents or hinders another station serving substantially the same area from broadcasting the network's programs not taken by the former station, or which prevents or hinders another station serving a substantially different area from broadcasting any program of the network organization. *Provided, however,* That this section does not prohibit arrangements under which the station is granted first call within its primary service area upon the network's programs. The

term "network organization" means any organization originating program material, with or without commercial messages, and furnishing the same to stations interconnected so as to permit simultaneous broadcast by all or some of them. However, arrangements involving only stations under common ownership, or only the rebroadcast by one station or programming from another with no compensation other than a lump-sum payment by the station rebroadcasting, are not considered arrangements with a network organization. The term "arrangement" means any contract, arrangement or understanding, express or implied.

**§ 73.233–238 [Deleted]**

**§ 73.239 Use of common antenna site.**

No FM broadcast station license or renewal of FM broadcast station license will be granted to any person who owns, leases, or controls a particular site which is peculiarly suitable for FM broadcasting in a particular area and (a) the site is not available for use by other FM broadcast station licensees; and (b) no other comparable site is available in the area; and (c) where the exclusive use of such site by the applicant or licensee would unduly limit the number of FM broadcast stations that can be authorized in a particular area or would unduly restrict competition among FM broadcast stations.

**§ 73.240 Multiple ownership.**

(a) (1) No license for an FM broadcast station shall be granted to any party (including all parties under common control) if such party directly or indirectly owns, operates, or controls: one or more FM broadcast stations and the grant of such license will result in any overlap of the predicted 1 mV/m contours of the existing and proposed stations, computed in accordance with § 73.313; or one or more television broadcast stations and the grant of such license will result in the predicted 1 mV/m contour of the proposed station, computed in accordance with § 73.313, encompassing the entire community of license of one of the television broadcast stations or will result in the Grade A contour(s) of the television broadcast station(s), computed in accordance with § 73.684, encompassing the entire community of license of the proposed station; or a daily newspaper and the grant of such license will result in the predicted 1 mV/m contour, computed in accordance with § 73.313, encompassing the entire community in which such newspaper is published.

(2) No license for an FM broadcast station shall be granted to any party (including all parties under common control) if such party, or any stockholder, officer or director of such party, directly or indirectly owns, operates, controls, or has any interest in, or is an officer or director of any other FM broadcast station if the grant of such license would result in a concentration of control of FM broadcasting in a manner inconsistent with the public interest, convenience, or necessity. The Commission, however, will in any event

consider that there would be such a concentration of control contrary to the public interest, convenience or necessity for any party or any of its stockholders, officers or directors to have a direct or indirect interest in, or be stockholders, officers, or directors of, more than seven FM broadcast stations, or of three broadcast stations in one or several services, where any two are within 100 miles of the third (measured city to city), if there is primary service contour overlap of any of the stations.

(3) The reference points which shall be used for city to city measurements are those listed in the Index to *The National Atlas of the United States of America*, United States Department of Interior, Geological Survey, Washington, D.C., 1970. (Future editions will supersede.) In the case of any community of license which is not referenced by the National Atlas, such as a newly established community, the point of reference shall be the main post office until such town is referenced. The National Atlas is available for reference at most public libraries and at the FCC in Washington.

(b) Paragraphs (a) and (c) of this section are not applicable to noncommercial educational FM stations.

(c) No renewal of license shall be granted for a term extending beyond January 1, 1980, to any party that as of January 1, 1975, directly or indirectly owns, operates or controls the only daily newspaper published in a community and also as of January 1, 1975, directly or indirectly owns, operates or controls the only commercial aural station or stations encompassing the entire community with a city-grade signal during daytime hours (predicted or measured signal for AM, predicted for FM). The provisions of this paragraph shall not require divestiture of any interest not in conformity with its provisions earlier than January 1, 1980. Divestiture is not required if there is a separately owned, operated or controlled television broadcast station licensed to serve the community.

NOTE 1.—The word "control" as used herein is not limited to majority stock ownership, but includes actual working control in whatever manner exercised.

NOTE 2.—In applying the provisions of paragraphs (a) (1) and (c) of this section, partial (as well as total) ownership interests in corporate broadcast licensees and corporate broadcast licensees and corporate daily newspapers represented by ownership of voting stock of such corporations will be considered.

NOTE 3.—Except as provided in Notes 4 and 5 of this section, in applying the provisions of paragraphs (a) (1), (a) (2), and (c) of this section to the stockholders of a corporation which has more than 50 voting stockholders, only those stockholders need be considered who are officers or directors or who directly or indirectly own 1 percent or more of the outstanding voting stock.

NOTE 4.—In applying the provisions of paragraphs (a) (1), (a) (2), and (c) of this section to the stockholders of a corporation which has more than 50 voting stockholders, an investment company as defined in 15 U.S.C. section 80a-3 need be considered only if it directly or indirectly owns 5 percent or more of the outstanding voting stock or if officers or directors of the corporation are representatives of the investment company. Provided, however, That the investment company exercises no control over the management or policies of the corporation. Holdings by investment companies under common management shall be aggregated.

NOTE 5.—In applying the provisions of paragraphs (a), (b), and (c) of this section to the stockholders of a corporation which has more than 50 voting stockholders, a bank holding stock through its trust department in trust accounts or an insurance company need be considered only if such bank or insurance company directly or indirectly owns 5 percent or more of the outstanding voting stock or if officers or directors of the corporation are representatives of the bank or insurance company. *Provided, however,* That the bank or insurance company exercise no control over the management or policies of the corporation. Holdings by banks or insurance companies shall be aggregated if the banks or insurance companies have any right to determine how the stock will be voted.

NOTE 6.—In calculating the percentage of ownership of voting stock under the provisions of Notes 4 and 5, if an investment company, bank or insurance company, directly or indirectly owns voting stock in a company which in turn directly or indirectly owns 50 percent or more of the voting stock of a corporate broadcast licensee or corporate daily newspaper, the investment company, bank or insurance company shall be considered to own the same percentage of outstanding shares of the corporate broadcast station licensee or corporate daily newspaper as it owns of outstanding voting shares of the company standing between it and the licensee corporation or corporate daily newspaper. If the intermediate company owns less than 50 percent of the voting stock of a corporate broadcast station licensee or corporate daily newspaper, the holding of the investment company, bank or insurance company need not be considered under the 5-percent rule, but officers or directors of the licensee corporation or of the corporate daily newspaper who are representatives of the intermediate company shall be deemed to be representatives of the investment company, bank or insurance company if the investment company, bank or insurance company owns 5 percent or more of the intermediate company.

NOTE 7.—In cases where record and beneficial ownership of voting stock of a corporate broadcast station licensee or corporate daily newspaper which has more than 50 voting stockholders are not identical, e.g., bank nominees holding stock as record owners for the benefit of mutual funds, brokerage houses holding stock in street names for the benefit of customers, trusts holding stock as record owners for the benefit of designated parties, and insurance companies holding stock, the party having the right to determine how the stock will be voted will be considered to own it for the purposes of these rules.

NOTE 8.—Paragraph (a) (1) of this section will not be applied so as to require divestiture, by any licensee, of existing facilities. Said paragraph will not apply to applications for assignment of license or transfer of control filed in accordance with § 73.3540(d) or § 73.3541(b) of this chapter, or to applications for assignment of license or transfer of control to heirs or legatees by will or intestacy if no new or increased overlap would be created between commonly owned, operated or controlled FM broadcast stations and if no new encompassment of communities proscribed in paragraph (a) (1) of this section as to commonly owned, operated, or controlled FM broadcast stations and television broadcast stations or daily newspapers would result. Said paragraph will apply to all applications for new stations, to all other applications for assignment or transfer, and to all applications for major changes in existing stations except major changes that will result in overlap of contours of FM broadcast stations with each other no greater than already existing. (The resulting areas of overlap of contours of FM broadcast stations with each other in such major change cases may consist partly or entirely of new terrain. However, if the population in the resulting overlap areas substantially exceeds that in the previously existing overlap areas, the Commission will not grant the application if it finds that to do so would be against the public interest, convenience, or necessity.) Paragraph (a) (1) of this section will not apply to any application by a party who directly or indirectly owns, operates or controls a UHF television broadcast station where grant of such application would result in the

Grade A contour of the UHF station encompassing the entire community of license of a commonly owned, operated, or controlled FM broadcast station or would result in the entire community of license of such UHF station being encompassed by the 1 mV/m contour of such FM broadcast station. Such community encompassment cases will be handled on a case-by-case basis in order to determine whether common ownership, operation, or control of the stations in question would be in the public interest. Commonly owned, operated, or controlled broadcast stations, with overlapping contours or with community-encompassing contours prohibited by paragraph (a)(1) of this section may not be assigned or transferred to a single person, group, or entity, except as provided above in this note. If a commonly owned, operated or controlled FM broadcast station and daily newspaper fall within the encompassing proscription of subparagraph (a)(1) of this section, the station may not be assigned to a single person, group or entity if the newspaper is being simultaneously sold to such single person, group or entity.

NOTE 9.—Paragraph (a)(1) of this section will not be applied to cases involving television stations which are primarily "satellite" operations. Such cases will be considered on a case-by-case basis in order to determine whether common ownership, operation, or control of the stations in question would be in the public interest. Whether or not a particular television broadcast station which does not present a substantial amount of locally originated programming is primarily a "satellite" operation will be determined on the facts of the particular case. An authorized and operating "satellite" television station the Grade A contour of which completely encompasses the community of license of a commonly owned, operated or controlled FM broadcast station, or the community of license which is completely encompassed by the 1 mV/m contour of such an FM broadcast station may subsequently become a "non-satellite" station with local studios and locally originated programming. However, such commonly owned, operated, or controlled FM and "non-satellite" television stations may not be transferred or assigned to a single person, group, or entity except as provided in Note 8.

NOTE 10.—For the purposes of this section a daily newspaper is one which is published four or more days per week, which is in the English language, and which is circulated generally in the community of publication. A college newspaper is not considered as being circulated generally.

NOTE 11.—For the purposes of the three station regional concentration provision of this section, (a) an application raising a regional concentration of control issue which involves one or more UHF television stations will be treated on a case-by-case basis, consistent with the precedents of UHF determinations made under the one-to-a-market proscriptions of this section, and (b) AM and FM broadcast stations licensed to communities which are within 15 miles (city reference point to reference point) and/or within the same urbanized area (as mapped by the U.S. Bureau of the Census), will be considered as a combination and counted as one station.

【§ 73.240(a)(3) added eff. 4-30-80; III(80)-1】

§ 73.242 Duplication of AM and FM programming.

(a) The extent to which an FM station may duplicate the programming of an AM station owned by the same licensee in the same local area is governed by the following:

(1) If either the AM or the FM station is licensed to a community of over 25,000 population, the FM station shall not operate so as to devote more than 25% of the average program week to duplicated programming.

(b) For the purposes of this Section, duplicated is defined to mean the simultaneous broadcasting of a particular program over both the AM and FM stations

or the broadcasting of a particular program by one station within 24 hours before or after the identical program is broadcast over the other station.

(c) For the purposes of this Section, the population is that shown in the latest regular U.S. Census Report.

(d) Compliance with the non-duplication requirement shall be verified by a showing in connection with the renewal applications as the FCC may require.

【§ 73.242 amended eff. 4-30-80; III(80)-1】

EQUIPMENT

§ 73.250 Acceptability of broadcast transmitters for licensing.

See § 73.1660.

§ 73.252 Frequency measurements.

See § 73.1540.

§ 73.253 Modulation monitors.

(a) Each FM station shall have installed either at the transmitter site, the extension meter location, or at the remote control point from which the transmitter is controlled, a properly operating modulation monitor of a type approved by the Commission. Except for stations operating with an automatic transmission system the monitor shall be in continuous operation with the total modulation level meter indications available to the operator on duty in charge of the transmitter. The following also apply to FM stations:

(1) If the station is engaged in stereophonic operations, the modulation monitor shall be of a type approved by the Commission for monitoring stereophonic transmission.

(2) If the station is using subcarriers for SCA operation or for remote control or automatic transmission system telemetry, the licensee must have a modulation monitor of a type approved by the FCC for monitoring SCA subcarrier transmissions.

(b) In the event that the modulation monitor becomes defective, the station may be operated without the monitor pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: *Provided, That*:

(1) Appropriate entries shall be made in the maintenance log of the station showing the date and time the monitor was removed and restored to service.

(2) During the period when the station is operated without the modulation monitor, the licensee shall provide other suitable means for insuring that the modulation is maintained within the tolerance prescribed in § 73.1570.

(c) If conditions beyond the control of the licensee prevent the restoration of the monitor to service within the above allowed period, informal request in accordance with § 73.3549 of this chapter may be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

**§ 73.254 Equipment performance measurements.**

(a) The license of each FM station must make equipment performance measurements for each main transmitter when initially installed and thereafter at least once each calendar year. One set of measurements must be made during the 4-month period immediately preceding the filing of the application for renewal of the station license. The dates of completion of successive sets of measurements may be no more than 14 months apart. (Equipment performance measurements for auxiliary transmitters are not required.) Equipment performance measurements must be made with equipment adjusted for normal program operation and shall include all circuits between the main studio amplifier microphone terminals or amplifier input and the antenna circuit including equalizer or corrective circuits normally used, but without compression. The measurement program must yield the following information:

(1) Audio frequency response from 50 to 15,000 hertz (Hz) for approximately 25, 50 and 100 percent modulation. Measurements shall be made on at least the following audio frequencies: 50, 100, 400, 1000, 5000, 10,000 and 15,000 Hz. The frequency response measurements should normally be made without deemphasis; however, standard 75 microsecond deemphasis may be employed in the measuring equipment or system provided the accuracy of the deemphasis circuit is sufficient to insure that the measured response is within the prescribed limits.

(2) Audio frequency harmonic distortion for 25, 50 and 100 percent modulation for the fundamental frequencies of 50, 100, 400, 1000, and 5000 Hz. Audio frequency harmonics for 100 percent modulation for fundamental frequencies of 10,000 and 15,000 Hz. Measurements shall normally include harmonics to 30,000 Hz. The distortion measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system.

(3) Output noise level (frequency modulation) in the band of 50 to 15,000 Hz in dB below the audio frequency level representing a frequency swing of 75 kHz. The noise measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system.

(4) Output noise level (amplitude modulation) in the band of 50 to 15,000 Hz in dB below the level representing 100 percent amplitude modulation. The noise measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system.

(b) The data required by paragraph (b) of this section, together with a description of instruments and procedure, signed and dated by the qualified person making the measurements, shall be kept on file at the transmitter or remote control point for a period of 2 years, and on request shall be made available during that time to any duly authorized representative of the Federal Communications Commission.

**§ 73.255 Auxiliary transmitter.**

See § 73.1670.

**§ 73.256 Alternate main transmitters.**

See § 73.1665.

**§ 73.257 Modification of transmission systems.**

Licenses of FM stations must observe the following procedures for making changes in authorized station transmitting systems.

(a) No changes shall be made:

(1) That would result in emission of signals outside of the authorized channel exceeding that which is permitted under § 73.317.

(2) That would result in the external performance characteristics being in disagreement with those prescribed in §§ 73.317 and 73.322.

(b) The following modifications may be made only upon specific authority of the FCC. Application to make such changes must be filed on FCC Form 301.

(1) Installation of a main transmitter which is not included on the FCC's "radio equipment list" as type accepted for broadcast use.

(2) Modification of an existing transmitter which would affect its power rating or change any of the performance characteristics which are required for type acceptance.

(3) Change in the location or overall height of the antenna supporting structure.

(4) Change in the height above ground of the antenna center of radiation exceeding  $\pm 2$  meters from that shown on the station authorization.

(5) Change in the effective radiated power of the station in the horizontal plane or in the directional radiation characteristics of the antenna.

(6) Change in an antenna system which is mounted on an AM station antenna or which could possibly affect the operation of any AM directional antenna system.

(c) The following modifications may be made and operation commenced without prior authorization from the FCC provided the modifications would not possibly affect the operation of any collocated or nearby AM station. Equipment performance measurements must be made and an application for license modification filed on FCC Form 302 within 10 days following completion of the changes.

(1) Replacement of a nondirectional antenna with one of the same or different type or number of bays: *Provided*, That the height above ground of the center of radiation is within  $\pm 2$  meters of that specified in the station authorization, and there is no change in the horizontal effective radiated power.

(2) Installation of a transmission line with one of a different type or length which requires change in the transmitter output power to maintain the licensed effective radiated power.

(3) Installation of harmonic filters or diplexers of a different type which require a change in the trans-

mitter output power to maintain the licensed effective radiated power.

(d) The following changes in the transmission system equipment may be made without prior authorization from or notification to the FCC. Equipment performance measurements must be made within 10 days after completing the modification.

(1) Installation of a new transmitter which is included on the FCC's "radio equipment list" as type accepted for broadcast use. (See § 73.1665.)

(2) Replacement of the carrier frequency generator of the transmitter with one of a different type that has been demonstrated to the FCC to be compatible with the transmitter in use.

(3) Replacement of the FM exciter unit of the transmitter with one that has been acceptable for FM station use through the FCC's type acceptance procedures and that has been demonstrated to the FCC to be compatible with the transmitter in use.

(4) Replacement of the stereophonic generator of the transmitter with one that has been demonstrated to the FCC to be compatible with the transmitter in use.

#### § 73.258 Indicating instruments.

(a) Each FM broadcast station shall be equipped with indicating instruments which conform with the specifications described in § 73.1215 for determining power by the indirect method; for indicating the relative amplitude of the transmission line radio frequency current, voltage, or power; and with such other instruments as are necessary for the proper adjustment, operation, and maintenance of the transmitting system.

(b) [Reserved]

(c) [Reserved]

(d) The function of each instrument shall be clearly and permanently shown in the instrument itself or on the panel immediately adjacent thereto.

(e) In the event that any one of these indicating instruments becomes defective when no substitute which conforms with the required specifications is available, the station may be operated without the defective instrument pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: *Provided*, That:

(1) Appropriate entries shall be made in the maintenance log of the station showing the date and time the meter was removed from and restored to service.

(2) [Reserved]

(3) If the defective instrument is the transmission line meter of a station which determines the output power by the direct method, the operating power shall be determined by the indirect method in accordance with § 73.267(c) during the entire time the station is operated without the transmission line meter.

(f) If conditions beyond the control of the licensee prevent the restoration of the meter to service within the above allowed period, informal request in accordance with § 73.3549 may be filed with the Engineer in Charge of the radio district in which the station is

located for such additional time as may be required to complete repairs of the defective instrument.

#### TECHNICAL OPERATION AND OPERATORS

##### § 73.261 Time of operation.

See § 73.1705 and 73.1740.

##### § 73.262 Experimental operation.

See § 73.1510 and § 73.1520.

##### § 73.263 Station inspection.

See § 73.1225.

##### § 73.264 Station and operator licenses; posting of.

See § 73.1230.

##### § 73.265 Operator requirements.

(a) One or more operators holding a radio operator license or permit of a grade specified in this section shall be in actual charge of the transmitting system, and shall be on duty at the transmitter location, or at an authorized remote control point, or the position at which extension meters, as authorized pursuant to § 73.1550 are located. The transmitter and required monitors and metering equipment, or the required extension meters and monitoring equipment, or the controls and required monitoring and meter equipment in an authorized remote control operation, shall be readily accessible to the licensed operator and located sufficiently close to the normal operating location that deviations from normal indications of required instruments can be observed from that location.

(b) With the exceptions set forth in paragraph (e) of this section, adjustments of the transmitting system, and inspection, maintenance, and required equipment performance measurements shall be performed only by a first-class radiotelephone operator, or, during periods of operation when a first-class radiotelephone operator is in charge of the transmitter, by, or under the direction of a broadcast consultant who is regularly engaged in the practice of broadcast station engineering.

(c) FM stations may employ persons holding any class of commercial radio operator license or permit for the routine duty operation of the transmitting system as defined in paragraph (e) below. In addition, each station must employ at least one person holding a First-Class Radiotelephone Operator License either in full-time or whatever less than full time the licensee determines is needed to keep the station operation in compliance with the FCC rules and terms of the station authorization. As an alternative to the employment of a first-class operator, the licensee may contract in writing for the services of one or more first-class operators who will be readily available on a part-time basis. Signed contracts must be kept in the station file and made available for inspection on request by authorized representatives of the FCC.

(d) The licensee of an FM station operating with a total transmitter output power exceeding 25 kW and employing lesser grade duty operators in accordance with paragraph (c) above must designate one first-class radiotelephone operator as the chief operator who, together with the licensee, shall be responsible for the technical operation of the station. The licensee may also designate another first-class radiotelephone operator as assistant chief operator who will assume all responsibilities during absences of the designated chief operator.

(1) A copy of the designation must be posted with the license of the designated operator.

(2) [Reserved.]

(3) The station licensee shall vest such authority in, and afford such facilities to the chief operator as may be necessary to insure that the chief operator's primary responsibility for the proper technical operation of the station may be discharged efficiently.

(4) At such time as the regularly designated chief operator is unavailable or unable to act as chief operator (e.g., vacations, sickness), and an assistant chief operator has not been designated, or, if designated, for any reason is unable to assume the duties of the chief operator, the licensee must designate another first-class radiotelephone operator as acting chief on a temporary basis.

(5) The designated chief operator may serve as a routine duty transmitter operator at any station only to the extent that it does not interfere with the efficient discharge of his responsibilities as listed below.

(i) The inspection and maintenance of the transmitting system, including the antenna system and required monitoring equipment.

(ii) The accuracy and completeness of entries in the maintenance log.

(iii) The supervision and instruction of all other station operators in the performance of their technical duties.

(iv) A review of completed operating logs to determine whether technical operation of the station has been in accordance with the rules and terms of the station authorization. After review, the chief operator shall sign the log and indicate the date and time of such review. If the review of the operating logs indicates technical operation of the station is in violation of the rules or terms of the station authorization, he shall promptly initiate corrective action. The review of each day's operating logs shall be made within 24 hours, except that, if the chief operator is not on duty during a given 24-hour period, the logs must be reviewed within 2 hours after his next appearance for duty. In any case, the time before review cannot exceed 72 hours.

(e) Subject to the conditions in paragraphs (c) and (d) of this Section, operators not holding first class radiotelephone operator licenses may make adjustments only of external controls, as follows:

(1) Those necessary to turn the transmitter on and off;

(2) Those necessary to compensate for voltage fluctuations in the primary power supply;

(3) Those necessary to maintain modulation levels of the transmitter within the prescribed limits.

(f) It is the responsibility of the station licensee to insure that each operator is fully instructed in the performance of all of the above adjustments as well as in other required duties, such as reading meters and making log entries. Printed step-by-step instructions for those adjustments which the lesser grade operator is permitted to make, and a tabulation or chart of upper and lower limiting values of parameters required to be observed and logged, shall be posted at the operating position. The emissions of the station shall be terminated immediately whenever the transmitting system is observed operating beyond the posted parameters, or in any other manner inconsistent with the rules or the station authorization and the above adjustments are ineffective in correcting the condition of improper operation and a first-class radiotelephone operator is not present.

(g) The operator on duty at the transmitter site or remote control point, may, at the discretion of the licensee and the chief operator, if any, be employed for other duties or for the operation of another radio station or stations in accordance with the class of operator's license which he holds and the rules and regulations governing such other stations: *Provided, however,* That such other duties shall not interfere with the proper operation of the transmitting system and keeping of required logs.

(h) At all FM broadcast stations, a complete inspection of the transmitting system and required monitoring equipment in use shall be made by an operator holding a first-class radiotelephone license at least once each calendar week. The interval between successive required inspections shall not be less than 5 days. This inspection shall include such tests, adjustments, and repairs as may be necessary to insure operation in conformance with the provisions of this subpart and the current station authorization.

(i) Procedures for licensees employing full-time first-class radiotelephone duty operators to temporarily employ persons holding lesser grade licenses, or to employ a temporary pro-tem chief operator when the designated chief is incapacitated or unavailable are given in § 73.3547.

**[§ 73.265(c), (d), (d)(1), and (d)(4) revised; (d)(2) deleted and reserved; (i) added; Eff. 4-30-80; III(80)-1]**

#### § 73.266 Operating power.

(a) *Determination.* See § 73.267.

(b) *Maintenance.* See § 73.1560.

(c) *Reduced power.* See § 73.1560.

#### § 73.267 Determining operating power.

(a) The operating power of each FM station is to be determined by either the direct or indirect method.

(b) *Direct method.* The direct method of power determination for an FM station uses the indications of a calibrated transmission line meter (responsive to relative voltage, current, or power) located at the RF output terminals of the transmitter. The indications of the calibrated meter are used to observe and maintain the authorized operating power of the station. This meter must be calibrated by the licensee at intervals not exceeding 6 months and whenever there is any indication that the calibration is inaccurate or whenever any component in the metering circuit is repaired or replaced. The following calibration procedures are to be used:

(1) The transmission line meter is calibrated by measuring the power at output terminals of the transmitter while operating into a dummy load of substantially zero reactance and a resistance equal to the transmission line characteristic impedance. The transmitter is to be unmodulated during this measurement.

(2) If electrical devices are used to determine the power output, such devices must permit determination of this power to within an accuracy of  $\pm 5\%$  of the power indicated by the full scale reading of the electrical indicating instrument of the device. If temperature and coolant flow indicating devices are used to determine the power output, such devices must permit determination of this power to within an accuracy of  $\pm 4\%$  of measured average power output. During this calibration, the input voltage and current of the final radio-frequency amplifier stage and the transmission line meter are to be read and compared with similar readings taken with the dummy load replaced by the antenna. These readings should be in substantial agreement.

(3) The calibration must cover, as a minimum, the range from 90% to 105% of authorized power and the meter must provide clear indications which will permit maintaining the operating power within the prescribed tolerance or the meter shall be calibrated to read directly in power units.

(c) *Indirect method.* The operating power is determined by the indirect method by applying an appropriate factor to the input power to the last radio-frequency power amplifier stage of the transmitter, using the following formula:

$$\text{Transmitter output power} = E_p \times I_p \times F$$

Where:

- $E_p$  = DC input voltage of final radio stage.
- $I_p$  = Total DC input current of final radio stage.
- $F$  = Efficiency factor.

(1) If the above formula is not appropriate for the design of the transmitter final amplifier, use a formula specified by the transmitter manufacturer with other appropriate operating parameters.

(2) The value of the efficiency factor,  $F$ , established for the authorized transmitter output power is to be used for maintaining the operating power, even though there may be some variation in  $F$  over the power operating range of the transmitter.

(3) The value of  $F$  is to be determined and a record kept thereof, by one of the following procedures listed in order of preference:

(i) Using the most recent measurement data for calibration of the transmission line meter according to the procedures described in paragraph (b) of this Section or the most recent measurements made by the licensee establishing the value of  $F$ . In the case of composite transmitters or those in which the final amplifier stages have been modified pursuant to FCC approval, the licensee must furnish the FCC and also retain with the station records the measurement data used as a basis for determining the value  $F$ .

(ii) Using measurement data shown on the transmitter manufacturer's test data supplied to the licensee; provided that measurements were made at the authorized frequency and transmitter output power.

(iii) Using the transmitter manufacturer's measurement data submitted to the FCC for type acceptance and as shown in the instruction book supplied to the licensee.

【§ 73.267(c) (3) (i) revised eff. 4-30-80; III(80)-1】

§ 73.268 Modulation.

See § 73.1570.

§ 73.269 Frequency tolerance.

See § 73.1545.

§ 73.270 Antenna structure, marking and lighting.

See § 73.1213.

§ 73.271 Discontinuance of operation.

See § 73.1750.

§ 73.273 Emergency antenna.

See § 73.1680.

§ 73.274 Remote control authorizations.

(a) The licensee of an FM station may operate by remote control without authorization from the FCC. Written notice giving the address and description of the remote control point being used must be sent to the FCC in Washington, D.C. within three days of commencing remote control operation. When a remote control point is at an address or location other than that of either the authorized transmitter or studio facilities, the licensee must also send a notice to the Engineer in Charge of the radio district in which the station is located. This additional notice is to include the full address, location and telephone number of the remote control point.

(b) FM stations may, without specific authority from the FCC use a subcarrier frequency for remote control telemetry, in accordance with the technical provisions of § 73.319, and upon installation of a modulation monitor type approved for monitoring FM subcarrier transmissions.

**§ 73.275 Remote control operation.**

(a) Operation by remote control shall be subject to the following conditions:

(1) The equipment at the operating and transmitting positions shall be so installed and protected that it is not accessible to or capable of operation by persons other than those duly authorized by the licensee.

(2) The control circuits from the operating position to the transmitter shall provide positive on and off control and shall be such that open circuits, short circuits, grounds or other line faults will not actuate the transmitter and any fault causing loss of such control will automatically place the transmitter in an inoperative position.

(3) A malfunction of any part of the remote control system resulting in improper control shall be cause for the immediate cessation of operation by remote control. A malfunction of any part of the remote control system, resulting in inaccurate meter readings, shall be cause for terminating operation by remote control no longer than 1 hour after the malfunction is detected.

(4) Control and monitoring equipment shall be installed so as to allow the licensed operator at the remote control point to perform all the functions in a manner required by the provisions of this part.

(5) Calibration of required indicating instruments at each remote control point shall be made against their corresponding instruments at the transmitter site as often as necessary to insure their accuracy, but in no event less than once a week, and:

(i) The results of such calibrations shall be entered in the station's maintenance log;

(ii) In no event shall a remote control meter be calibrated against another remote control meter;

(iii) Each remote control meter shall be accurate within 2 percent of the value read on its corresponding meter at the transmitter site.

(6) All remote control meters shall conform with specifications required for the regular transmitter, antenna, and monitor meters.

(7) Meters with arbitrary scale divisions may be used provided that calibration charts or curves are provided at the transmitter remote control point showing the relationship between the arbitrary scales and the reading of the main meters.

(8) The total percentage of modulation indications of the modulation monitor shall be continuously available at the remote control point(s), except when other transmission system meter readings are being taken. The modulation level indications shall be continuously monitored between meter readings unless the transmission system is equipped with an automatic device to limit the modulation so as not to exceed the peak levels specified in § 73.1570.

(b) [Reserved]

(c) When a subcarrier is used for telemetry of remote control data from the transmitter to the control point, radiation of the subcarrier is only necessary when remote transmitter readings are being made. However, the subcarrier must be available for telemetry

at all times. The subcarrier logging requirements specified in § 73.295(f) are not applicable to remote control telemetry operation.

**§ 73.276 Extension meters.**

See § 73.1550.

【§ 73.276 added eff. 4-30-80; III (80)-1】

**§ 73.277 Permissible transmissions.**

(a) No FM broadcast licensee or permittee shall enter into any agreement, arrangement or understanding, oral or written, whereby it undertakes to supply, or receives consideration for supplying, on its main channel a functional music, background music, or other subscription service (including storecasting) for reception in the place or places of business of any subscriber.

(b) The transmission (or interruption) of radio energy in the FM broadcast band is permissible only pursuant to a station license, program test authorization, Subsidiary Communications Authorization (SCA) or other specific authority therefor.

**§ 73.278 Special field test authorization.**

See § 73.1515.

**OTHER OPERATING REQUIREMENTS****§ 73.281 General requirements relating to logs.**

See § 73.1800.

**§ 73.282 [Removed]**

【§ 73.282 removed eff. 4-3-81; III (80)-1】

**§ 73.283 Operating logs.**

See § 73.1820.

**§ 73.284 Maintenance logs.**

See § 73.1830.

**§ 73.285 Retention of logs.**

See § 73.1840.

**§ 73.286 Availability of logs and records.**

See §§ 73.1225 and 73.1850.

**§ 73.287 Station identification.**

See § 73.1201.

**§ 73.288 Fraudulent billing practices.**

See § 73.1205.

**§ 73.289 Sponsorship identification.**

See § 73.1212.

**§ 73.290 Broadcasts by candidates for public office.**

See § 73.1940.

**§ 73.291 Personal attack; political editorials.**

See §§ 73.1910, 73.1920 and 73.1930.

**§ 73.292 Lotteries.**

See § 73.1211.

**§ 73.293 Subsidiary Communications Authorizations.**

(a) An FM broadcast licensee or permittee may apply for a Subsidiary Communications Authorization (SCA) to provide limited types of subsidiary services on a multiplex basis. Permissible uses must fall within one or both of the following categories:

(1) Transmission of programs which are of a broadcast nature, but which are of interest primarily to limited segments of the public wishing to subscribe thereto. Illustrative services include: background music; storecasting; detailed weather forecasting; special time signals; and other material of a broadcast nature expressly designed and intended for business, professional, educational, religious, trade, labor, agricultural or other groups engaged in any lawful activity.

(2) Transmission of signals which are directly related to the operation of FM stations; for example, relaying of broadcast material to other stations, remote cueing and order circuits, and similar uses. (Use of multiplex subcarriers for transmission of control and data telemetry for remote control or automatic transmission systems (ATS) operations does not require an SCA.)

(b) An application for an SCA shall be submitted on FCC Form 318. An application for SCA shall specify the particular nature and purpose of the proposed use. If visual transmission of program material is contemplated (see § 73.310(c)), the application shall include certain technical information concerning the visual system, on which the Commission shall rely in issuing an SCA. If any significant change is subsequently made in the system, revised information shall be submitted. The technical information to be submitted is as follows:

(1) A full description of the visual transmission system.

(2) A block diagram of the system, as installed at the station, with all components, including filters, identified as to make and type. Response curves of all composite filters shall be furnished.

(3) The results of measurements which demonstrate that the subcarrier, when modulated by the visual signal, meets the requirements of § 73.319(e), and of such observations or measurements as may be necessary to show that signal components of appreciable strength are not produced outside of the band normally occupied by the FM station's emissions (see § 73.317(a) (12) and (13)). A description of the apparatus and techniques employed in these measurements and observations shall be furnished.

(4) Experimental operation of an FM station to obtain the technical information necessary to support an application for an SCA for visual transmissions may be conducted under the provisions of § 73.1510.

(c) SCA operations may be conducted without restriction as to time so long as the main channel is programmed simultaneously.

(d) Prior permission to engage in any new or additional SCA activity other than the transmission of control and data telemetry for remote control ATS operation must be obtained from the FCC by filing an application on FCC form 318.

**§ 73.294 Nature of the SCA.**

(a) The SCA is of a subsidiary or secondary nature and shall not exist apart from the FM license or permit. No transfer or assignment of it shall be made separate from the FM broadcast license, and failure to transfer the SCA with the FM license renders the SCA void. Any assignment or transfer of an SCA shall, if desired, be requested as part of the main station's transfer or assignment application. The licensee or permittee must seek renewal of the SCA at the same time it applies for its renewal of FM license or permit; failure to renew the latter automatically terminates the SCA.

(b) The grant or renewal of an FM license or permit shall not be furthered or promoted by the proposed or past operation under an SCA; the licensee must establish that his broadcast operation is in the public interest wholly apart from the SCA activities. (Violation of rules applicable to the SCA operation would, of course, reflect on the licensee's qualifications to hold its broadcast license or permit.)

**§ 73.295 Use of multiplex subcarriers.**

(a) Use of multiplex subcarriers by an FM station must conform to the purposes authorized by the FCC under a Subsidiary Communications Authorization (SCA) except for the transmission control and telemetry data for remote control or automatic transmission system operation which may be conducted without an SCA.

(b) Superaudible and subaudible tones and pulses may, when authorized by the Commission, be employed by SCA holders to activate and deactivate subscribers' multiplex receivers. The use of these or any other control techniques to delete main channel material is specifically forbidden.

(c) In all arrangements entered into with outside parties affecting SCA operation, the licensee or permittee must retain control over all material transmitted over the station's facilities, with the right to reject any material which it deems inappropriate or undesirable. Subchannel leasing agreements shall be reduced to writing, kept at the station, and made available for inspection upon request.

(d) The station identification, delayed recording, and sponsor identification announcements required by §§ 73.1201, 73.1208, and 73.1212, and the program log requirements for such announcements in § 73.1810 are not applicable to material transmitted under an SCA.

(e) To the extent that SCA circuits are used for the transmission of program material, each licensee or permittee shall maintain a daily program log in which a general description of the material transmitted

shall be entered once during each broadcast day: *Provided, however*, That in the event of a change in the general description of the material transmitted, an entry shall be made in the SCA program log indicating the time of each such change and a description thereof.

(f) A daily SCA operating log must be maintained for the multiplex subcarrier transmissions, except those for control and data telemetry for remote control or ATS operation. The following log entries are to be made, excluding subcarrier interruptions of 15 minutes or less;

- (1) Time subcarrier generator is turned on.
- (2) Time modulation is applied to subcarrier.
- (3) Time modulation is removed from subcarrier.
- (4) Time subcarrier generator is turned off.

(g) The frequency of each SCA subcarrier shall be measured as often as necessary to ensure that it is kept at all times within 500 Hz of the authorized frequency. However, in any event, the measurement shall be made at least once each calendar month with not more than 40 days expiring between successive measurements.

(h) Program and operating logs for SCA operation may be kept on special columns provided on the station's regular program and operating log sheets.

(i) Technical standards governing SCA operation (§ 73.319) shall be observed by all FM broadcast stations engaging in such operation.

【§ 73.295 (d) revised eff. 4-30-80; III(80)-1】

#### § 73.296 Broadcast of telephone conversations.

See § 73.1206.

#### § 73.297 Stereophonic broadcasting.

(a) An FM broadcast station may, without specific authority from the FCC, transmit stereophonic programs upon installation of type accepted stereophonic transmitting equipment and a type approved stereophonic modulation monitor. Prior to commencement of stereophonic broadcast, equipment performance measurements must be completed.

(b) Each licensee or permittee engaging in stereophonic broadcasting shall measure the pilot subcarrier frequency as often as necessary to ensure that it is kept at all times within 2 Hz of the authorized frequency. However, in any event, the measurement shall be made at least once each calendar month with not more than 40 days expiring between successive measurements.

#### § 73.298 Operation during emergency.

See § 73.1250.

#### § 73.299 Equal employment opportunities.

See § 73.2080.

### FM TECHNICAL STANDARDS

#### § 73.310 Definitions.

(a) *Frequency modulation.*

*Antenna height above average terrain.* The average

of the antenna heights above the terrain from 2 to 10 miles from the antenna for the eight directions spaced evenly for each 45 degrees of azimuth starting with True North. (In general, a different antenna height will be determined in each direction from the antenna. The average of these various heights is considered the antenna height above the average terrain. In some cases less than eight directions may be used. See § 73.313(d).) Where circular or elliptical polarization is employed, the antenna height above average terrain shall be based upon the height of the radiation center of the antenna which transmits the horizontal component of radiation.

*Antenna power gain.* The square of the ratio of the root-mean-square free space field strength produced at 1 mile in the horizontal plane, in millivolts per meter for 1 kilowatt antenna input power to 137.6 mv/m. This ratio should be expressed in decibels (dB). (If specified for a particular direction, antenna power gain is based on the field strength in that direction only.)

*Center frequency.* The term "center frequency" means:

- (1) The average frequency of the emitted wave when modulated by a sinusoidal signal.
- (2) The frequency of the emitted wave without modulation.

*Effective radiated power.* The term "effective radiated power" means the product of the antenna power (transmitter output power less transmission line loss) times (1) the antenna power gain, or (2) the antenna field gain squared. Where circular or elliptical polarization is employed, the term effective radiated power is applied separately to the horizontal and vertical components of radiation. For allocation purposes, the effective radiated power authorized is the horizontally polarized component of radiation only.

*Equivalent isotropically radiated power (EIRP).* The term "equivalent isotropically radiated power" (also known as "effective radiated power above isotropic") means the product of the antenna input power and the antenna gain in a given direction relative to an isotropic antenna.

*Frequency departure.* The amount of variation of a carrier frequency or center frequency from its assigned value.

*Frequency deviation.* The peak difference between the instantaneous frequency of the modulated wave and the carrier frequency.

*FM broadcast band.* The band of frequencies extending from 88 to 108 MHz, which includes those assigned to noncommercial educational broadcasting.

*FM broadcast channel.* A band of frequencies 200 kHz wide and designated by its center frequency. Channels for FM broadcast stations begin at 88.1 MHz and continue in successive steps of 200 kHz to and including 107.9 MHz.

**FM broadcast station.** A station employing frequency modulation in the FM broadcast band and licensed primarily for the transmission of radio-telephone emissions intended to be received by the general public.

**Field strength.** The electric field strength in the horizontal plane.

**Free space field strength.** The field strength that would exist at a point in the absence of waves reflected from the earth or other reflecting objects.

**Frequency Modulation.** A system of modulation where the instantaneous radio frequency varies in proportion to the instantaneous amplitude of the modulating signal (amplitude of modulating signal to be measured after pre-emphasis, if used) and the instantaneous radio frequency is independent of the frequency of the modulating signal.

**Frequency swing.** The peak difference between the maximum and the minimum values of the instantaneous frequency of the carrier wave during modulation.

**Multiplex transmission.** The term "multiplex transmission" means the simultaneous transmission of two or more signals within a single channel. Multiplex transmission as applied to FM broadcast stations means the transmission of facsimile or other signals in addition to the regular broadcast signals.

**Percentage modulation.** The ratio of the actual frequency deviation to the frequency deviation defined as 100% modulation, expressed in percentage. For FM broadcast stations, a frequency deviation of  $\pm 75$  kHz is defined as 100% modulation.

(b) **Stereophonic broadcasting.**

**Cross-talk.** An undesired signal occurring in one channel caused by an electrical signal in another channel.

**FM stereophonic broadcast.** The transmission of a stereophonic program by a single FM broadcast station utilizing the main channel and a stereophonic subchannel.

**Left (or right) signal.** The electrical output of a microphone or combination of microphones placed so as to convey the intensity, time, and location of sounds originating predominately to the listener's left (or right) of the center of the performing area.

**Left (or right) stereophonic channel.** The left (or right) signal as electrically reproduced in reception of FM stereophonic broadcasts.

**Main channel.** The band of frequencies from 50 to 15,000 hertz which frequency-modulate the main carrier.

**Pilot subcarrier.** A subcarrier serving as a control signal for use in the reception of FM stereophonic broadcasts.

**Stereophonic separation.** The ratio of the electrical signal caused in the right (or left) stereophonic channel to the electrical signal caused in the left (or right) stereophonic channel by the transmission of only a right (or left) signal.

**Stereophonic subcarrier.** A subcarrier having a frequency which is the second harmonic of the pilot subcarrier frequency and which is employed in FM stereophonic broadcasting.

**Stereophonic subchannel.** The band of frequencies from 23 to 53 kHz containing the stereophonic subcarrier and its associated sidebands.

(c) **Visual transmission.** Transmissions of a broadcast nature on a subcarrier modulated with a signal of such characteristics as to permit its employment, in receivers of appropriate design, for visual presentation of the information so transmitted, e.g., on a viewing screen or a graphic record.

#### § 73.311 Field strength contours.

(a) Applications for FM broadcast authorizations must show two field strength contours. These are the 70 dBu (3.16 mV/m) and the 60 dBu (1 mV/m) contours. These contours indicate only the approximate extent of coverage over average terrain in the absence of interference. Under actual conditions, the true coverage may vary greatly from these estimates because the terrain over any specific path is expected to be different from the average terrain on which the field strength chart was based. Because of these factors the estimated contours give no assurance of service to any specific percentage of receiver locations within the distances indicated.

(b) The field strength contours provided for in this section shall be considered for the following purposes only:

(1) In the estimation of coverage resulting from the selection of a particular transmitter site by an applicant for an FM broadcast station.

(2) In connection with problems of coverage arising out of application of § 73.240.

(3) In determining compliance with § 73.315 (a) concerning the minimum field strength to be provided over the principal community to be served.

#### § 73.312 Topographic data.

(a) In the preparation of the profile graphs previously described, and in determining the location and height above mean sea level of the antenna site, the elevation or contour intervals shall be taken from United States Geological Survey Topographic Quadrangle Maps, United States Army Corps of Engineers Maps or Tennessee Valley Authority maps, whichever is the latest, for all areas for which such maps are available. If such maps are not published for the area in question, the next best topographic information should be used. Topographic data may sometimes be obtained from state and municipal agencies. The data from the Sectional Aeronautical Charts (including bench marks) or railroad depot elevations and highway elevations from road maps may be used where no better information is available. In cases where limited topographic data can be obtained, use may be made of an altimeter in a car driven along roads extending generally radially from the transmitter site.

(b) The Commission will not ordinarily require the submission of topographical maps for areas beyond 15 miles from the antenna site, but the maps must include the principal city or cities to be served. If it appears necessary, additional data may be requested.

(c) The U.S. Geological Survey Topography Quadrangle Sheets may be obtained from the U.S. Geological Survey Department of the Interior, Washington, D.C. 20240. The Sectional Aeronautical Charts are available from the U.S. Coast and Geodetic Survey, Department of Commerce, Washington, D.C. 20235. These maps may also be secured from branch offices and from authorized agents or dealers in most principal cities.

§ 73.313 Prediction of coverage.

[*Effectiveness of § 73.313 (f), (g), (h), (i), & (j) STAYED UNTIL FURTHER ORDER OF THE COMMISSION*]

(a) All predictions of coverage made pursuant to this section shall be made without regard to interference and shall be made only on the basis of estimated field strengths.

(b) Predictions of coverage shall be made only for the same purposes as relate to the use of field strength contours as specified in § 73.311.

(c) (1) In predicting the distance to the field strength contours, the F (50,50) field strength chart, Figure 1 of § 73.333, shall be used. The 50 percent field strength is defined as that value exceeded for 50 percent of the time. The F (50,50) chart gives the estimated 50 percent field strengths exceeded at 50 percent of the locations in decibels above 1 uV/m. The chart is based on an effective power of 1 kilowatt radiated from a half-wave dipole in free space, which produces an unattenuated field strength at 1 mile of about 103 dB above 1 uV/m (137.6 mV/m).

(2) To use the chart for other powers, the sliding scale associated with the chart should be trimmed and used as the ordinate scale. This sliding scale is placed on the chart with the appropriate gradation for power in line with the horizontal 40 dB line on the chart. The right edge of the scale is placed in line with the appropriate antenna height gradations, and the chart then becomes direct reading (in uV/m and in dB above 1 uV/m) for this power and antenna height. Where the antenna height is not one of those for which a scale is provided, the signal strength or distance is determined by interpolation between the curves connecting the equidistant scale. Dividers may be used in lieu of the sliding scale. In predicting the distance to the field strength contours, the effective radiated power to be used is that in the horizontal plane in the pertinent direction. In predicting other field strengths over areas not in horizontal plane, the effective radiated power to be used is the power in the direction of such areas; the appropriate vertical plane radiation pattern must, of course, be considered in determining this power.

(d) The antenna height to be used with this chart is the height of the radiation center of the antenna above the average terrain along the radial in question. In determining the average elevation of the terrain, the elevations between 2 and 10 miles from the antenna site are employed. Profile graphs shall be drawn for eight radials beginning at the antenna site and extending 10 miles therefrom. The radials should be drawn for each 45 degrees of azimuth starting with true north. At least one radial must include the principal community to be served even though such community may be more than 10 miles from the antenna site. However, in the event none of the evenly spaced radials include the principal community to be served and one or more such radials are drawn in addition to the eight evenly spaced radials, such additional radials shall not be employed in computing the antenna height above average terrain. Where the 2- to 10-mile portion of a radial extends in whole or in part over a large body of water or extends over foreign territory but the 50 uv/m contour encompasses land area within the United States beyond the 10-mile portion of the radial, the entire 2- to 10-mile portion of the radial shall be included in the computation of antenna height above average terrain. However, where the 50 uv/m contour does not so encompass United States land area and (1) the entire 2- to 10-mile portion of the radial extends over large bodies of water or foreign territory, such radial shall be completely omitted from the computation of antenna height above average terrain, and (2) where a part of the 2- to 10-mile portion of a radial extends over large bodies of water or over foreign territory, only that part of the radial extending from the 2-mile sector to the outermost portion of land area within the United States covered by the radial shall be employed in the computation of antenna height above average terrain. The profile graph for each radial should be plotted by contour intervals of from 40 to 100 feet and, where the data permits, at least 50 points of elevation (generally uniformly spaced) should be used for each radial. In instances of very rugged terrain where the use of contour intervals of 100 feet would result in several points in a short distance, 200- or 400-foot contour intervals may be used for such distances. On the other hand, where the terrain is uniform or gently sloping the smallest contour interval indicated on the topographic map should be used, although only relatively few points may be available. The profile graph should indicate the topography accurately for each radial, and the graphs should be plotted with the distance in miles as the abscissa and the elevation in feet above mean sea level as the ordinate. The profile graphs should indicate the source of the topographical data employed. The graph should also show the elevation of the center of the radiating system. The graph may be plotted either on rectangular coordinate paper or on special paper which shows the curvature of the earth. It is not necessary to take the curvature of the earth into consideration in this procedure, as this factor is taken care of in the charts showing signal strengths. The

average elevation of the 8-mile distance between 2 and 10 miles from the antenna site should then be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (that exceeded for 50 percent of the distance) in sectors and averaging those values.

Examples of HAAT calculations:

(1) The heights above average terrain on the eight radials are as follows:

	<i>Feet</i>
0° .....	350
45° .....	870
90° .....	640
135° .....	300
180° .....	-35
225° .....	-280
270° .....	125
315° .....	270

The antenna height above average terrain (defined in § 73.310 (a)) is computed:

$$(350+870+640+300-35-280+125+270)/8=280 \text{ ft.}$$

(2) Same as (a), except the 0° radial is entirely over sea water.

The antenna height above average terrain is computed:

$$(870+640+300-35-280+125+270)/7=270 \text{ ft.}$$

Note that the divisor is 7, not 8.

(3) Same as (a), except that only the first 6 miles of the 90° radial are in the United States; beyond 6 miles the 90° radial is in a foreign country. The height above average terrain of the 2 to 6 mile portion of the 90° radial is 440 ft.

The antenna height above average terrain is computed:

$$(350+870+440+300-35-280+125+270)/8=255 \text{ ft.}$$

Note that the divisor is 8, not 7.5.

(e) In cases where the terrain in one or more directions from the antenna site departs widely from the average elevation of the 2- to 10-mile sector, the prediction method may indicate contour distances that are different from what may be expected in practice. For example, a mountain ridge may indicate the practical limit of service although the prediction method may indicate otherwise. In such cases the prediction method should be followed, but a supplemental showing may be made concerning the contour distances as determined by other means. Such supplemental showing should describe the procedure employed and should include sample calculations. Maps of predicted coverage should include both the coverage as predicted by the regular method and as predicted by a supplemental method. When measurements of area are required, these should include the area obtained by the regular prediction method and the area obtained by the supplemental method. In directions where the terrain is such that negative antenna heights or heights below 100 feet for the 2- to 10-mile

sector are obtained, a supplemental showing of expected coverage must be included together with a description of the method employed in predicting such coverage. In special cases, the Commission may require additional information as to terrain and coverage.

(f) The effect of terrain roughness on the predicted field strength of a signal at points distant from an FM broadcast station is assumed to depend on the magnitude of a terrain roughness factor ( $\Delta h$ ) which, for a specific propagation path, is determined by the characteristics of a segment of the terrain profile for that path 25 miles in length, located between 6 and 31 miles from the transmitter. The terrain roughness factor has a value equal to the difference, in meters, between elevations exceeded by all points on the profile for 10 percent and 90 percent, respectively, of the length of the profile segment (see § 73.333, Fig. 4).

(g) If the lowest field strength value of interest is initially predicted to occur over a particular propagation path at a distance which is less than 31 miles from the transmitter, the terrain profile segment used in the determination of the terrain roughness factor over that path shall be that included between points 6 miles from the transmitter and such lesser distance. No terrain roughness correction need be applied when all field strength values of interest are predicted to occur 6 miles or less from the transmitter.

(h) Profile segments prepared for terrain roughness factor determinations should be plotted in rectangular coordinates, with no less than 50 points evenly spaced within the segment, using data obtained from topographic maps with contour intervals of 50 feet, or less, if available.

(i) The field strength charts (§ 73.333, Figs. 1-1a) were developed assuming a terrain roughness factor of 50 meters, which is considered to be representative of average terrain in the United States. Where the roughness factor for a particular propagation path is found to depart appreciably from this value, a terrain roughness correction ( $\Delta F$ ) should be applied to field strength values along this path, as predicted with the use of these charts. The magnitude and sign of this correction, for any value of  $\Delta h$ , may be determined from a chart included in § 73.333 as Figure 5.

(j) Alternatively, the terrain roughness correction may be computed using the following formula:

$$\Delta F = 1.9 - 0.03(\Delta h)(1 + f/300)$$

Where:

- $\Delta F$  = terrain roughness correction in dB
- $\Delta h$  = terrain roughness factor in meters
- $f$  = frequency of signal in megahertz (MHz)

**[Effectiveness of § 73.313 (f), (g), (h), (i) & (j) STAYED UNTIL FURTHER ORDER OF THE COMMISSION; III (76)-3]**

**§ 73.314 Field strength measurements.**

(a) Except as provided for in § 73.209, FM broadcast stations shall not be protected from any type of interference or propagation effect. Persons desiring to submit testimony, evidence or data to the Commission for the purpose of showing that the technical stand-

ards contained in this subpart do not properly reflect the levels of any given type of interference or propagation effect may do so only in appropriate rule making proceedings concerning the amendment of such technical standards. Persons making field strength measurements for formal submission to the Commission in rule making proceedings, or making such measurements upon the request of the Commission, shall follow the procedure for making and reporting such measurements outlined in paragraph (b) of this Section. In instances where a showing of the measured level of a signal prevailing over a specific community is appropriate, the procedure for making and reporting field strength measurements for this purpose is set forth in paragraph (c) of this Section.

(b) Collection of field strength data for propagation analysis.

(1) *Preparation for measurements.* (i) On large scale topographic maps, 8 or more radials are drawn from the transmitter location to the maximum distance at which measurements are to be made, with the angles included between adjacent radials of approximately equal size. Radials should be oriented so as to traverse representative types of terrain. The specific number of radials and their orientation should be such as to accomplish this objective.

(ii) At a point exactly 10 miles from the transmitter, each radial is marked, and at greater distances at successive 2 mile intervals. Where measurements are to be conducted or over extremely rugged terrain, shorter intervals may be employed, but all such intervals shall be of equal length. Accessible roads intersecting each radial as nearly as possible at each 2 mile marker are selected. These intersections are the points on the radial at which measurements are to be made, and are referred to subsequently as measuring locations. The elevation of each measuring location should approach the elevation at the corresponding two mile marker as nearly as possible.

(2) *Measurement procedure.* All measurements shall be made utilizing a receiving antenna designed for reception of the horizontally polarized signal component, elevated 30 feet above the roadbed. At each measuring location, the following procedure shall be employed:

- (i) The instrument calibration is checked.
- (ii) The antenna is elevated to a height of 30 feet.
- (iii) The receiving antenna is rotated to determine if the strongest signal is arriving from the direction of the transmitter.
- (iv) The antenna is oriented so that the sector of its response pattern over which maximum gain is realized is in the direction of the transmitter.
- (v) A mobile run of at least 100 feet is made, which is centered on the intersection of the radial and the road, and the measured field strength is continuously recorded on a chart recorder over the length of the run.
- (vi) The actual measuring location is marked exactly on the topographic map, and a written record, keyed to the specific location, is made of all factors

which may affect the recorded field, such as topography, height, and types of vegetation, buildings, obstacles, weather, and other local features.

(vii) If, during the test conducted as described in paragraph (b) (2) (iii) of this Section, the strongest signal is found to come from a direction other than from the transmitter, after the mobile run prescribed in paragraph (b) (2) (v) of this Section is concluded, additional measurements shall be made in a "cluster" of at least five fixed points. At each such point, the field strengths with the antenna oriented toward the transmitter, and with the antenna oriented so as to receive the strongest field, are measured and recorded. Generally, all points should be within 200 feet of the center point of the mobile run.

(viii) If overhead obstacles preclude a mobile run of at least 100 feet, a "cluster" of five spot measurements may be made in lieu of this run. The first measurement in the cluster is identified. Generally, the locations for other measurements shall be within 200 feet of the location of the first.

(3) *Method of reporting measurements.* A report of measurements to the Commission shall be submitted in affidavit form, in triplicate, and should contain the following information:

(i) Tables of field strength measurements, which, for each measuring location, set forth the following data:

- (A) Distance from the transmitting antenna.
- (B) Ground elevation at measuring location.
- (C) Date, time of day, and weather.

(D) Median field in dBu for 0 dBk, for mobile run or for cluster, as well as maximum and minimum measured field strengths.

(E) Notes describing each measuring location.

(ii) U.S. Geological Survey topographic maps, on which is shown the exact location at which each measurement was made. The original plots shall be made on maps of the largest available scale. Copies may be reduced in size for convenient submission to the Commission, but not to the extent that important detail is lost. The original maps shall be made available, if requested. If a large number of maps is involved, an index map should be submitted.

(iii) All information necessary to determine the pertinent characteristics of the transmitting installation, including frequency, geographical coordinates of antenna site, rated and actual power output of transmitter, measured transmission line loss, antenna power gain, height of antenna above ground, above mean sea level, and above average terrain. The effective radiated power should be computed, and horizontal and vertical plane patterns of the transmitting antenna should be submitted.

(iv) A list of calibrated equipment used in the field strength survey, which, for each instrument, specifies its manufacturer, type, serial number and rated accuracy, and the date of its most recent calibration by the manufacturer, or by a laboratory. Complete details of

any instrument not of standard manufacture shall be submitted.

(v) A detailed description of the calibration of the measuring equipment, including field strength meters, measuring antenna, and connecting cable.

(vi) Terrain profiles in each direction in which measurements were made, drawn on curved earth paper for equivalent  $4/3$  earth radius, of the largest available scale.

(c) Collection of field strength data to determine FM broadcast service in specific communities.

(1) *Preparation for measurement.* (i) The population (P) of the community, and its suburbs, if any, is determined by reference to an appropriate source, e.g., the 1970 U.S. Census tables of population of cities and urbanized areas.

(ii) The number of locations at which measurements are to be made shall be at least 15, and shall be approximately equal to  $0.1 (P)^{1/2}$ , if this product is a number greater than 15.

(iii) A rectangular grid, of such size and shape as to encompass the boundaries of the community is drawn on an accurate map of the community. The number of line intersections on the grid included within the boundaries of the community shall be at least equal to the required number of measuring locations. The position of each intersection on the community map determines the location at which a measurement shall be made.

(2) *Measurement procedure.* All measurements shall be made utilizing a receiving antenna designed for reception of the horizontally polarized signal component, elevated 30 feet above street level.

(i) Each measuring location shall be chosen as close as feasible to a point indicated on the map, as previously prepared, and at as nearly the same elevation as that point as possible.

(ii) At each measuring location, after equipment calibration and elevation of the antenna, a check is made to determine whether the strongest signal arrives from a direction other than from the transmitter.

(iii) At 20 percent or more of the measuring locations, mobile runs, as described in paragraph (b) (2) of this Section shall be made, with no less than three such mobile runs in any case. The points at which mobile measurements are made shall be well separated. Spot measurements may be made at other measuring points.

(iv) Each actual measuring location is marked exactly on the map of the community, and suitably keyed. A written record shall be maintained, describing, for each location, factors which may affect the recorded field, such as the approximate time of measurement, weather, topography, overhead wiring, heights and types of vegetation, buildings and other structures. The orientation with respect to the measuring location shall be indicated of objects of

such shape and size as to be capable of causing shadows or reflections. If the strongest signal received was found to arrive from a direction other than that of the transmitter, this fact shall be recorded.

(3) *Method of reporting measurements.* A report of measurements to the Commission shall be submitted in affidavit form, in triplicate, and should contain the following information:

(i) A map of the community showing each actual measuring location, specifically identifying the points at which mobile runs were made.

(ii) A table keyed to the above map, showing the field strength at each measuring point, reduced to dBu for the actual effective radiated power of the station. Weather, date, and time of each measurement shall be indicated.

(iii) Notes describing each measuring location.

(iv) A topographic map of the largest available scale on which are marked the community and the transmitter site of the station whose signals have been measured which includes all areas on or near the direct path of signal propagation.

(v) Computations of the mean and standard deviation of all measured field strengths, or a graph on which the distribution of measured field strength values is plotted.

(vi) A list of calibrated equipment used for the measurements, which for each instrument, specifies its manufacturer, type, serial number and rated accuracy, and the date of its most recent calibration by the manufacturer, or by a laboratory. Complete details of any instrument not of standard manufacture shall be submitted.

(vii) A detailed description of the procedure employed in the calibration of the measuring equipment, including field strength meters, measuring antenna, and connecting cable.

#### § 73.315 Transmitter location.

(a) The transmitter location shall be chosen so that, on the basis of the effective radiated power and antenna height above average terrain employed, a minimum field strength of 70 dB above 1  $\mu\text{V/m}$  (dBu), or 3.16 mV/m, will be provided over the entire principal community to be served.

(b) The transmitter location should be as near the center of the proposed service area as possible consistent with the applicant's ability to find a site with sufficient elevation to provide service throughout the area. Location of the antenna at a point of high elevation is necessary to reduce to a minimum the shadow effect on propagation due to hills and buildings which may reduce materially the intensity of the station's signals in a particular direction. The transmitting site should be selected consistent with the purpose of the station, i.e., whether it is intended to serve a small city, a metropolitan area, or a large region. Inasmuch as service may be provided by signals of 1 mV/m or

greater field strengths in metropolitan areas, and inasmuch as signals as low as 50 uv/m may provide service in rural areas, considerable latitude in the geographical location of the transmitter is permitted; however, the necessity for a high elevation for the antenna may render this problem difficult. In general, the transmitting antenna of a station should be located at the most central point at the highest elevation available. In providing the best degree of service to an area, it is usually preferable to use a high antenna rather than a lower antenna with increased transmitter power. The location should be so chosen that line-of-sight can be obtained from the antenna over the principal city or cities to be served; in no event should there be a major obstruction in this path.

(c) The transmitting location should be selected so that the 1 mv/m contour encompasses the urban population within the area to be served. It is recognized that topography, shape of the desired service area, and population distribution may make the choice of a transmitter location difficult. In such cases consideration may be given to the use of a directional antenna system, although it is generally preferable to choose a site where a nondirectional antenna may be employed.

(d) In cases of questionable antenna locations it is desirable to conduct propagation tests to indicate the field intensity expected in the principal city or cities to be served and in other areas, particularly where severe shadow problems may be expected. In considering applications proposing the use of such locations, the Commission may require site tests to be made. Such tests should include measurements made in accordance with the measurement procedures described in § 73.314, and full data thereon shall be supplied to the Commission. The test transmitter should employ an antenna having a height as close as possible to the proposed antenna height, using a balloon or other support if necessary and feasible. Information concerning the authorization of site tests may be obtained from the Commission upon request.

(e) Present information is not sufficiently complete to establish "blanket areas" of FM broadcast stations, which are defined as those areas adjacent to the transmitters in which the reception of other stations is subject to interference due to the strong signal from the stations. Where it is found necessary to locate the transmitter in a residential area where blanketing problems may appear to be excessive, the application must include a showing concerning the availability of other sites. The authorization of station construction in areas where blanketing problems appear to be excessive will be on the basis that the applicant will assume full responsibility for the adjustment of reasonable complaints arising from excessively strong signals of the applicant's station.

(f) Cognizance must of course be taken regarding the possible hazard of the proposed antenna structure to aviation and the proximity of the proposed site to airports and airways. Procedures and standards with respect to the Commission's consideration of proposed antenna structures which will serve as a guide to per-

sons intending to apply for radio station licenses are contained in Part 17 of this Chapter (Construction, Marking, and Lighting of Antenna Structures).

#### § 73.316 Antenna systems.

(a) It shall be standard to employ horizontal polarization; however, circular or elliptical polarization may be employed if desired. Clockwise or counterclockwise rotation may be used. The supplemental vertically polarized effective radiated power required for circular or elliptical polarization shall in no event exceed the effective radiated power authorized.

(b) The antenna must be constructed so that it is as clear as possible of surrounding buildings or objects that would cause shadow problems.

(c) *Directional antennas.* A directional antenna is considered to be an antenna that is designed or altered for the purpose of obtaining a noncircular radiation pattern. Directional antennas may not be used for the purpose of reducing minimum mileage separation requirements but may be employed for the purpose of improving service or for the purpose of using a particular site; directional antennas with a ratio of maximum to minimum radiation in the horizontal plane of more than 15 dB will not be permitted.

(d) *Applications for directional antennas.* Applications proposing the use of directional antenna systems must be accompanied by the following:

(1) Complete description of the proposed antenna system, including:

(i) a description of the means whereby the directivity is proposed to be obtained, and

(ii) the means (such as a rotatable reference antenna) whereby the operational antenna pattern will be determined prior to licensed operation and maintained within proper tolerances thereafter.

(2) Horizontal and vertical plane radiation patterns showing the free space field strength in mv/m at 1 mile and effective radiated power in dBk for each direction. If directivity was computed, the showing shall include the method by which the radiation patterns were computed, including formulae used, sample calculations and tabulations of data. If the directivity was measured, the method employed should be fully described, including the equipment used and the resultant measured data shall be tabulated. Sufficient vertical patterns shall be included to indicate clearly the radiation characteristics of the antenna above and below the horizontal plane. Complete information and patterns shall be provided for angles of  $\pm 10^\circ$  from the horizontal plane and sufficient additional information included on that portion of the pattern lying between  $+10^\circ$  and the zenith and  $-10^\circ$  and the nadir, to conclusively demonstrate the absence of undesirable lobes in these areas. The horizontal plane pattern shall be plotted on polar coordinate paper with reference to true north. The vertical plane pattern shall be plotted on rectangular coordinate paper with reference to the horizontal plane.

(3) Name, address, and qualifications of the engineer making the calculations.

(e) Applications proposing the use of FM broadcast antennas in the immediate vicinity (i.e., 200 feet or less) of (1) other FM broadcast antennas, or (2) television broadcast antennas for frequencies adjacent to the FM broadcast band, must include a showing as to the expected effect, if any, of such proximate operation.

(f) In cases where it is proposed to use a tower of a standard broadcast station as a supporting structure for an FM broadcast antenna, an application for construction permit (or modification of construction permit) for such standard broadcast station must be filed for consideration with the FM application, only in the event the overall height of the standard broadcast station tower changes. Applications may be required for other classes of stations when their towers are to be used in connection with FM stations.

(g) When an FM broadcast antenna is mounted on a nondirectional AM broadcast antenna, new resistance measurements must be made of the AM broadcast antenna after installation and testing of the FM broadcast antenna. During the installation and until the new resistance determination is approved, the AM broadcast station licensee should operate by the indirect method of power determination. The FM broadcast license application will not be considered until the application form concerning resistance measurements is filed for the standard broadcast station.

(h) When an FM broadcast antenna is mounted on an element of an AM broadcast directional antenna, a full engineering study concerning the effect of the FM broadcast antenna on the directional pattern must be filed with the application concerning the AM broadcast station. Depending upon the individual case, the Commission may require readjustment and certain field strength measurements of the AM broadcast station following the completion of the FM broadcast antenna system.

(i) When the proposed FM antenna is to be mounted on a tower in the vicinity of an AM station directional antenna system and it appears that the operation of the directional antenna system may be affected, an engineering study must be filed with the FM application concerning the effect of the FM antenna on the AM directional radiation pattern. Field measurements of the AM station may be required prior to and following construction of the FM station antenna, and readjustments made as necessary.

(j) Information regarding data required in connection with AM broadcast directional antenna systems may be found in § 73.150 of this Chapter. (See also AM Broadcast Technical Standards.)

§ 73.317 Transmission system requirements.

(a) *Electrical performance standards.* The general design of the FM broadcast transmitting system (from input terminals of microphone preamplifier, through audio facilities at the studio, through lines or other circuits between studio and transmitter, through audio facilities at the transmitter, and through the

transmitter, but excluding equalizers for the correction of deficiencies in microphone response) shall be in accordance with the following principles and specifications:

(1) The transmitter must operate satisfactorily in the operating power range with a frequency deviation of  $\pm 75$  kHz, which is defined as 100% modulation.

(2) The transmitting system shall be capable of transmitting a band of frequencies from 50 to 15,000 hertz (Hz). Preemphasis shall be employed in accordance with the impedance-frequency characteristic of a series inductance-resistance network having a time constant of 75 microseconds. (See Fig. 2 of § 73.333.) The deviation of the system response from the standard preemphasis curve shall lie between two limits as shown in Figure 2 of § 73.333. The upper of these limits shall be uniform (no deviation) from 50 to 15,000 Hz. The lower limit shall be uniform from 100 to 7,500 Hz, and 3 dB below the upper limit; from 100 to 50 Hz the lower limit shall fall from the 3 dB limit at a uniform rate of 1 dB per octave (4 dB at 50 Hz); from 7,500 to 15,000 Hz the lower limit shall fall from the 3 dB limit at a uniform rate of 2 dB per octave (5 dB at 15,000 Hz).

(3) At any modulation frequency between 50 and 15,000 Hz and at modulation percentages of 25, 50, and 100 percent, the combined audio frequency harmonics measured in the output of the system shall not exceed the root-mean-square values given in the following table:

Modulating frequency:	<i>Distortion percent</i>
50 to 100 Hz .....	3.5
100 to 7,500 Hz .....	2.5
7,500 to 15,000 Hz .....	3.0

(i) Measurements shall be made employing 75 microsecond deemphasis in the measuring equipment and 75 microsecond preemphasis in the transmitting equipment, and without compression if a compression amplifier is employed. Harmonics shall be included to 30 kHz.

(ii) It is recommended that none of the three main divisions of the system (transmitter, studio to transmitter circuit, and audio facilities) contribute over one-half of these percentages since at some frequencies the total distortion may become the arithmetic sum of the distortions of the divisions.

(4) The transmitting system output noise level (frequency modulation) in the band of 50 to 15,000 hertz must be at least 60 db below 100% modulation (frequency deviation of  $\pm 75$  kHz). The measurement must be made using 400 hertz modulation as a reference. The noise-measuring equipment must include a 75 microsecond deemphasis; the ballistic characteristics of the instrument must be similar to those of the standard VU meter.

(5) The transmitting system output noise level (amplitude modulation) in the band of 50 to 15,000 Hz shall be at least 50 dB below the level representing 100 percent amplitude modulation. The noise-measuring equipment shall be provided with standard

75-microsecond deemphasis; the ballistic characteristics of the instrument shall be similar to those of the standard VU meter.

(6) Automatic means shall be provided in the transmitter to maintain the assigned center frequency within the allowable tolerance ( $\pm 2,000$  Hz).

(7) [Reserved]

(8) Adequate provision shall be made for varying the transmitter output power to compensate for excessive variations in line voltage or for other factors affecting the output power.

(9) Adequate provision shall be provided in all component parts to avoid overheating at the rated maximum output power.

(10) Means should be provided for connection and continuous operation of an approved modulation monitor.

(11) If a limiting or compression amplifier is employed, precaution should be maintained in its connection in the circuit due to the use of preemphasis in the transmitting system.

(12) Any emission appearing on a frequency removed from the carrier by between 120 kHz and 240 kHz, inclusive, shall be attenuated at least 25 decibels below the level of the unmodulated carrier. Compliance with this specification will be deemed to show the occupied bandwidth to be 240 kHz or less.

(13) Any emission appearing on a frequency removed from the carrier by more than 240 kHz and up to and including 600 kHz shall be attenuated at least 35 dB below the level of the unmodulated carrier.

(14) Any emission appearing on a frequency removed from the carrier by more than 600 kHz shall be attenuated at least  $43 + 10 \log_{10}$  (Power, in watts) dB below the level of the unmodulated carrier, or 80 dB, whichever is the lesser attenuation.

(b) *Construction.* In general, the transmitter shall be constructed either on racks and panels or in totally enclosed frames protected as required by the provisions of the National Electrical Code concerning transmitting equipment at radio and television stations, and as set forth below:

(1) Means shall be provided for making all tuning adjustments, requiring voltages in excess of 350 volts to be applied to the circuit, from the front of the panels with all access doors closed.

(2) Proper bleeder resistors or other automatic means shall be installed across all capacitor banks to lower any voltage which may remain accessible with access door open to less than 350 volts within 2 seconds after the access door is opened.

(3) All plate supply and other high voltage equipment, including transformers, filters, rectifiers and motor generators, shall be protected so as to prevent injury to operating personnel.

(i) Commutator guards shall be provided on all high voltage rotating machinery. Coupling guards should be provided on motor generators.

(ii) Power equipment and control panels of the transmitter shall meet the above requirements (exposed 220 volt AC switching equipment on the front of the power control panels is not recommended but is not prohibited).

(iii) Power equipment located at a broadcast station but not directly associated with the transmitter (not purchased as part of same), such as power distribution panels, are not under the jurisdiction of the Commission; therefore this paragraph does not apply.

(4) *Metering equipment:*

(i) All instruments having more than 1,000 volts potential to ground on the movement shall be protected by a cage or cover in addition to the regular case. (Some instruments are designed by the manufacturer to operate safely with voltages in excess of 1,000 volts on the movement. If it can be shown by the manufacturer's rating that the instrument will operate safely at the applied potential, additional protection is not necessary.)

(ii) In case the plate voltmeter is located on the low potential side of the multiplier resistor with the potential of the high potential terminal of the instrument at or less than 1,000 volts above ground, no protective case is required. However, it is good practice to protect voltmeters subject to more than 5,000 volts with suitable over-voltage protective devices across the instrument terminals in case the winding opens.

(iii) Transmission line meters and any other radio frequency instrument which may be necessary for the operator to read shall be so installed as to be easily and accurately read without the operator having to risk contact with circuits carrying high potential radio frequency energy.

(5) It is recommended that component parts comply as much as possible with the component specifications designated by the Army-Navy Electronics Standards Agency.

(c) *Wiring and shielding.* (1) The transmitter panels or units shall be wired in accordance with standard switchboard practice, either with insulated leads properly cabled and supported or with rigid bus bar properly insulated and protected.

(2) Wiring between units of the transmitter, with the exception of circuits carrying radio frequency energy, shall be installed in conduits or approved fiber or metal raceways for protection from mechanical injury.

(3) Circuits carrying radio frequency energy between units shall be coaxial, two wire balanced lines, or properly shielded.

(4) All stages or units shall be adequately shielded and filtered to prevent interaction and radiation.

(5) The modulation monitor and radio frequency lines of the transmitter shall be thoroughly shielded.

(d) *Installation.* (1) The installation shall be made in suitable quarters.

(2) Since an operator must be on duty at the transmitter control point during operation, suitable facilities for his welfare and comfort shall be provided at the control point.

(e) [Reserved]

(f) *Operation.* In addition to specific requirements of the rules governing FM broadcast stations, the following operating requirements are specified:

(1) The maximum percentage of modulation shall be maintained in accordance with § 73.1570. However, precautions shall be taken so as not to substantially alter the dynamic characteristics of musical programs.

(2) The station equipment shall be so operated, tuned, and adjusted that emissions outside of the authorized channel do not cause harmful interference to the reception of other radio stations. FM broadcast stations employing transmitters type accepted after January 1, 1960, shall maintain the bandwidth occupied by their emissions in accordance with the specifications set forth in paragraph (a) of this section. Stations employing transmitters installed or type accepted prior to January 1, 1960, shall achieve the highest degree of compliance practicable with their existing equipment. In either case, should harmful interference to the reception of other radio stations occur, the licensee may be required to take such further steps as may be necessary to eliminate the interference.

(3) If a limiting or compression amplifier is employed, care should be maintained in its use due to preemphasis in the transmitting system.

(g) *Studio equipment.* (1) Studio equipment shall be subject to all the above requirements where applicable except as follows:

(i) If properly covered by an underwriter's certificate, it will be considered as satisfying safety requirements.

(ii) The pertinent provisions of the National Electrical Code concerning transmitting equipment at radio and television stations shall apply for voltages only when in excess of 500 volts.

(2) No specific requirements are made with regard to the microphones to be employed. However, microphone performance (including compensating networks, if employed) shall be compatible with the required performance of the transmitting system.

(3) No specific requirements are made relative to the design and acoustical treatment of studios. However, the design of studios, particularly the main studio, shall be compatible with the required performance characteristics of FM broadcast stations.

§ 73.318 [Reserved]

§ 73.319 **Subsidiary communications multiplex operations: engineering standards.**

(a) Frequency modulation of SCA subcarriers shall be used.

(b) The instantaneous frequency of SCA subcarriers shall at all times be within the range 20 to 75 kHz: *Provided, however,* That when the station is engaged in stereophonic broadcasting pursuant to § 73.297 or § 73.597, the instantaneous frequency of SCA subcarriers shall at all times be within the range of 53 to 75 kHz.

(c) The arithmetic sum of the modulation of the main carrier by SCA subcarriers shall not exceed 30 percent: *Provided, however,* That when the station is engaged in stereophonic broadcasting pursuant to § 73.297, or § 73.597, the arithmetic sum of the modulation of the main carrier by the SCA subcarriers shall not exceed 10 percent.

(d) The total modulation of the main carrier, including SCA subcarriers, shall meet the requirements of § 73.1570.

(e) Frequency modulation of the main carrier caused by the SCA subcarrier operation shall, in the frequency range 50 to 15,000 Hz, be at least 60 dB below 100 percent modulation: *Provided, however,* That when the station is engaged in stereophonic broadcasting pursuant to § 73.297, or § 73.597, frequency modulation of the main carrier by the SCA subcarrier operation shall, in the frequency range 50 to 53,000 Hz, be at least 60 dB below 100% modulation.

(f) The center frequency of each SCA subcarrier shall be kept at all times within 500 Hz of the authorized frequency.

§ 73.320 **Indicating instruments—specifications.**

See § 73.1215

§ 73.321 [Deleted]

§ 73.322 **Stereophonic transmission standards.**

(a) The modulating signal for the main channel shall consist of the sum of the left and right signals.

(b) A pilot subcarrier at 19,000 hertz (Hz) plus or minus 2 Hz shall be transmitted that shall frequency modulate the main carrier between the limits of 8 and 10 percent.

(c) The stereophonic subcarrier shall be the second harmonic of the pilot subcarrier and shall cross the time axis with a positive slope simultaneously with each crossing of the time axis by the pilot subcarrier.

(d) Amplitude modulation of the stereophonic subcarrier shall be used.

(e) The stereophonic subcarrier shall be suppressed to a level less than one percent modulation of the main carrier.

(f) The stereophonic subcarrier shall be capable of accepting audio frequencies from 50 to 15,000 Hz.

(g) The modulating signal for the stereophonic subcarrier shall be equal to the difference of the left and right signals.

(h) The pre-emphasis characteristics of the stereophonic subchannel shall be identical with those of the main channel with respect to phase and amplitude at all frequencies.

(i) The sum of the side bands resulting from amplitude modulation of the stereophonic subcarrier shall not cause a peak deviation of the main carrier in excess of 45 percent of total modulation (excluding SCA subcarriers) when only a left (or right) signal exists; simultaneously in the main channel, the deviation when only a left (or right) signal exists shall not exceed 45 percent of total modulation (excluding SCA subcarriers).

(j) Total modulation of the main carrier including pilot subcarrier and SCA subcarriers shall meet the requirements of § 73.1570 with maximum modulation of the main carrier by all SCA subcarriers limited to 10 percent.

(k) At the instant when only a positive left signal is applied, the main channel modulation shall cause an upward deviation of the main carrier frequency; and the stereophonic subcarrier and its sidebands signal shall cross the time axis simultaneously and in the same direction.

(l) The ratio of peak main channel deviation to peak stereophonic subchannel deviation when only a steady state left (or right) signal exists shall be within plus or minus 3.5 percent of unity for all levels of this signal and all frequencies from 50 to 15,000 Hz.

(m) The phase difference between the zero points of the main channel signal and the stereophonic subcarrier sidebands envelope, when only a steady state left (or right) signal exists, shall not exceed plus or minus 3 degrees for audio modulating frequencies from 50 to 15,000 Hz.

**NOTE:** If the stereophonic separation between left and right stereophonic channels is better than 29.7 dB at audio modulating frequencies between 50 and 15,000 Hz, it will be assumed that paragraphs (l) and (m) of this section have been complied with.

(n) Cross-talk into the main channel caused by a signal in the stereophonic subchannel shall be attenuated at least 40 dB below 90 percent modulation.

(o) Cross-talk into the stereophonic subchannel caused by a signal in the main channel shall be attenuated at least 40 dB below 90 percent modulation.

(p) For required transmitter performance, all of the requirements of §§ 73.254 and 73.554 shall apply with the exception that the maximum modulation to be employed is 90 percent (excluding pilot subcarrier) rather than 100 percent.

(q) For electrical performance standards of the transmitter and associated equipment, the requirements of § 73.317(a) (2), (3), (4), and (5) shall apply to the main channel and stereophonic subchannel alike, except that where 100 percent modulation

is referred to, this figure shall include the pilot subcarrier.

§ 73.330 [Deleted]

§ 73.332 Requirements for type approval of FM modulation monitors.

(a) Procedures for obtaining type approval of FM modulation monitors are contained in § 73.1668 and in Subpart J of Part 2 of the FCC rules.

(1) In approving a monitor upon the basis of the tests conducted by the Laboratory, the Commission merely recognizes that the type of monitor has the inherent capability of functioning in compliance with the rules, if properly constructed, maintained and operated.

(2) Additional rules with respect to withdrawal of type approval, modification of type approval equipment and limitations on the findings upon which type approval is based are set forth in Part 2, Subpart J of this Chapter.

(b) The specifications that a non-multiplex modulation monitor shall meet before it will be approved by the Commission are as follows:

(1) A means for insuring that the transmitter input to the modulation monitor is proper.

(2) A modulation peak indicating device that can be set at any predetermined value from 50% to 120% modulation ( $\pm 75$  kHz deviation is defined as 100% modulation) for either positive or negative deviation.

(3) A semi-peak indicator with a meter having the characteristics given below shall be used with a circuit such that peaks of modulation of duration between 40 and 90 milliseconds are indicated to 90 percent of full value and the discharge rate adjusted so that the pointer returns from full reading to 10 percent of zero within 500 to 800 milliseconds. A switch shall be provided so that this meter will read either positive or negative swings.

(1) The characteristics of the indicating meter are:  
 (a) *Damping factor.* The damping factor shall be between 16 and 200. (b) *Scale.* The meter scale shall be similar in appearance to that of a standard VU meter. The scale length between 0 and 100 percent modulation markings should be at least 2.3 inches. In addition to other markings a small mark for 133 percent modulation and designated as such should be included for the purpose of testing transmitters with 100 kHz swing.

(4) The accuracy of reading of percentage of modulation shall be within  $\pm 5$  percent modulation percentage at any percentage of modulation up to 100 percent modulation.

(5) The frequency characteristic curve shall not depart from a straight line more than  $\pm \frac{1}{2}$  dB from 50 to 15,000 Hz. Distortion shall be kept to a minimum.

(6) The monitor shall not absorb appreciable power from the transmitter.

(7) Operation of the monitor shall have no deleterious effect on the operation of the transmitter.

(8) General design, construction, and operation shall be in accordance with good engineering practice.

(c) [Reserved]

(d) The specifications that a modulation monitor shall meet before it will be type approved for monitoring stereophonic operation are as follows:

(1) A means for measuring the modulation percentage of the carrier produced by the main channel signal. For this purpose the instrument shall comply with the provisions of paragraph (b) of this section except that no peak preset indicator need be provided, and the accuracy indication shall be  $\pm 5$  percent in modulation percentage for all frequencies from 50 to 15,000 hertz (Hz). The frequency characteristic, in addition to satisfying the modulation accuracy requirement, must be such that the attenuation at 19 kilohertz (kHz) shall be at least 26 dB, and the attenuation at 23 kHz and above shall be at least 46 dB. These ratios are with respect to the minimum response in the frequency range 50 to 15,000 kHz.

(2) A means for measuring the modulation percentage of the carrier produced by the stereophonic subcarrier (38 kHz) and its sidebands. For this purpose the instrument shall comply with the provisions of paragraph (b) of this section except that no peak preset indicator need be provided and the accuracy of the indication shall be within  $\pm 5$  percent in modulation percentage for frequencies 23 to 53 kHz. The frequency characteristic, in addition to satisfying the modulation accuracy requirement, must be such that the attenuation at 10 kHz and below, and 59 kHz and above. All these ratios are with respect to the minimum response in the band from 23 to 53 kHz.

(3) A means for measuring the modulation percentage of the carrier by the pilot subcarrier (19 kHz). For this purpose the indicating meter shall have a scale with length of at least 2.3 inches. Markings shall be provided for 6 percent, 8 percent, 10 percent, and 12 percent modulation with the range between 6 percent and 12 percent occupying at least 50 percent of this scale length. The accuracy of reading at the 8 percent and 10 percent limits shall be  $\pm \frac{1}{2}$  percent in modulation percentage.

(4) A means for measuring total modulation percentage of the carrier by the main channel, stereophonic subchannel, pilot subcarrier, and all SCA subcarriers simultaneously. For this purpose the instrument shall comply with the provisions of paragraph (b) of this section except that the frequency characteristic shall not have more than a one dB difference for any frequencies from 50 Hz to 75 kHz. The accuracy of the modulation percentage reading must hold when the modulation consists of complete

composite stereophonic signals (main channel, pilot subcarrier and stereophonic subchannel). Left and right signals used to produce this composite signal shall include sinusoidal tones from 50 to 15,000 Hz. The peak preset indicator must also respond correctly to tone bursts at repetition rates from one to ten bursts per second with the following composition of the bursts:

(i) Ten consecutive cycles of a constant amplitude 10,000 Hz sinusoid; and (ii) five consecutive cycles of a constant amplitude 1,000 Hz sinusoid. In addition, each response of the peak preset indicator shall persist for a minimum of 2 and a maximum of 4 seconds and be independent of the direction of frequency deviation.

(5) A means for measuring individually the amplitudes of the left and the right stereophonic channels. For this purpose the instrument shall have, for all frequencies in the range 50 to 15,000 Hz:

(i) A frequency characteristic permitting a 1 dB maximum variation.

(ii) A harmonic distortion of 1 percent or less.

(iii) A capability of reading stereophonic channel separation of at least 35 dB with an accuracy of  $\pm 3$  dB.

(iv) An internal means of ensuring that the proper phase relationship exists between the incoming 19 kHz pilot carrier and regenerated stereophonic subcarrier in the monitor.

(6) A means for accurately indicating cross talk from the main channel and SCA operation into the stereophonic subchannel, and from the stereophonic subchannel into the main channel. (With stereophonic operation, SCA operation shall be considered as from 59 to 75 kHz.) For this purpose the monitor must have:

(i) A provision for indicating a cross talk ratio of at least 70 dB.

(ii) A characteristic not exceeding 46 dB of internal cross talk for any single main channel signal or for any single stereophonic subchannel signal that modulates the main carrier 90 percent.

(iii) A characteristic not exceeding 66 dB of internal cross talk (with respect to 100 percent modulation) for any SCA operation from 50 to 75 kHz that modulates the main carrier 10 percent. The SCA cross talk shall be evaluated for the main channel frequency range from 50 to 15,000 Hz and the stereophonic subchannel range from 23,000 to 53,000 Hz.

(7) The requirements of subparagraphs (5) and (6) of this paragraph contemplate the use of sinusoidal test signals.

(8) A means for accurately indicating a suppression of the stereophonic subcarrier of at least 46 dB with respect to 100 percent modulation of the carrier. The means must be valid for 90 percent subchannel modulation for signals from 5,000 to 15,000 Hz.

(9) When signals are brought out for external metering or monitoring, they shall have all the char-

acteristics stipulated for internal metering purposes, and any loading by external circuitry shall have no effect on the monitor's indications.

(e) The stereophonic subchannel modulation display may be a part of the main channel modulation display. However, if switching of functions is utilized, the peak preset indicator of total modulation must be independent of this switching and afford a continuous display of total modulation.

(f) The specifications that a modulation monitor shall meet before it will be type approved for monitoring SCA operation are as follows:

(1) A means for measuring the modulation percentage of the carrier produced by the main channel signal. For this purpose the instrument shall comply with the provisions of paragraph (b) of this Section except that no peak preset indicator need be provided, and the accuracy of indication shall be  $\pm 5$  percent in modulation percentage for all frequencies from 50 to 15,000 Hz. The frequency characteristic, in addition to satisfying the modulation accuracy requirement, must be such that the attenuation from 20 kHz to 75 kHz shall be at least 46 dB with respect to the minimum response in the frequency range 50 to 15,000 Hz.

(2) A means for measuring the modulation of the main carrier by each unmodulated subcarrier separated by a minimum of 5 kHz from an adjacent unmodulated subcarrier to an accuracy of one percent in modulation percentage. For SCA subcarriers from 59 to 75 kHz, the monitor characteristic shall be such as to ignore any signal of 53 kHz and below, the amplitude of which is +40 dB with respect to the subcarrier being measured. For SCA subcarriers from 20 to 75 kHz (no stereophonic service), the monitor characteristic shall be such as to ignore a +40 dB signal at 15 kHz or below.

**NOTE:** Compliance with this requirement will be assumed for monitors that can meet the following test conditions:

(i) For subcarriers from 59 to 75 kHz, one subcarrier is introduced at a level which modulates the main carrier to any percentage from 1 to 10 percent; a second subcarrier, not less than 5 kHz removed from the first, is added at a level such that the total modulation of the main carrier by the two subcarriers is 10 percent. The modulation of the main carrier by the first subcarrier shall be indicated to an accuracy of one percent in modulation percentage. If the monitor is intended for two or more subcarriers, each subcarrier shall be indicated to an accuracy of one percent.

(ii) A sinusoidal signal in the range of 50 Hz to 53 kHz and at a level sufficient to modulate the main carrier 90 percent is added to the two subcarriers. The indications obtained in subdivision (i) of this Note shall not change more than 0.5 percent in modulation percentage.

(iii) For subcarriers from 20 to 75 kHz, one subcarrier is introduced at a level which modulates the main carrier to any percentage from 3 to 30 percent; a second subcarrier, not less than 5 kHz removed from the first, is added at a level such that the total modulation of the main carrier by the two subcarriers is 30 percent. The modulation of the main

carrier by the first subcarrier shall be indicated to an accuracy of one percent in modulation percentage. If the monitor is intended for two or more subcarriers, each subcarrier shall be indicated to an accuracy of one percent.

(iv) A sinusoidal signal in the range of 50 Hz to 15 kHz and at a level sufficient to modulate the main carrier 70 percent is added to the two subcarriers. The indications obtained in subdivision (iii) of this Note shall not change more than 0.5 percent in modulation percentage.

(3) A means for measuring total modulation percentage of carrier by the main channel and all SCA subcarriers simultaneously. For this purpose the instrument shall comply with the provisions of paragraph (b) of this section except that the frequency characteristic shall not have more than a one dB difference for any frequencies from 50 Hz to 75 kHz. The accuracy of the modulation percentage reading must hold when the modulation consists of main channel and SCA subcarrier signals. The peak preset indicator must also respond correctly to tone bursts at repetition rates from one to ten bursts per second with the following composition of the bursts: (i) Ten consecutive cycles of a constant amplitude 10,000 Hz sinusoid; and (ii) five consecutive cycles of a constant amplitude 1,000 Hz sinusoid. In addition, each response of the peak preset indicator shall persist for a minimum of 2 and a maximum of 4 seconds and be independent of the direction of frequency deviation.

(4) A means for measuring the frequency deviation of each subcarrier in the presence of modulation in all channels (main, SCA, and stereophonic (if applicable)) to an accuracy of 1 kHz under the modulation conditions specified in the application for type approval.

(5) A means for measuring the cross talk of SCA operation (20 to 75 kHz) into the main channel (50 to 15,000 Hz) with an accuracy of 6 dB. The monitor's internal cross talk characteristic must be at least 60 dB (100 percent modulation) and the monitor must be capable of indicating at least 70 dB.

(6) When signals are brought out for external metering or monitoring, they shall have all the characteristics stipulated for internal metering purposes, and any loading by external circuitry shall have no effect on the monitor's indication.

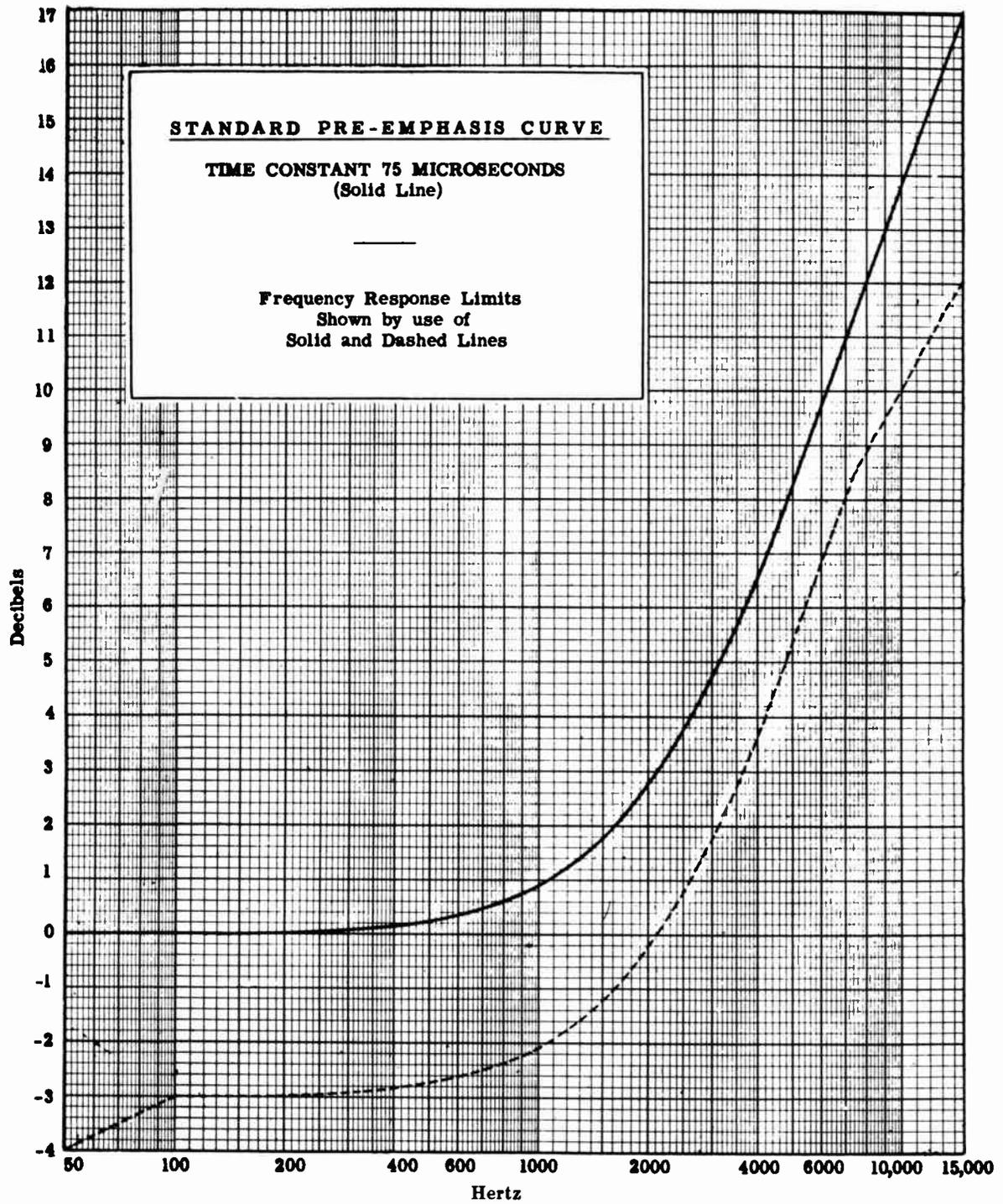
(g) The SCA modulation display may be part of the main channel modulation display but the peak preset indicator of total modulation must be independent of any switching functions and afford a continuous display.

**[§ 73.332 headnote and (a) revised eff. 4-30-80; III (80)-1]**

### § 73.333 FM Engineering charts.

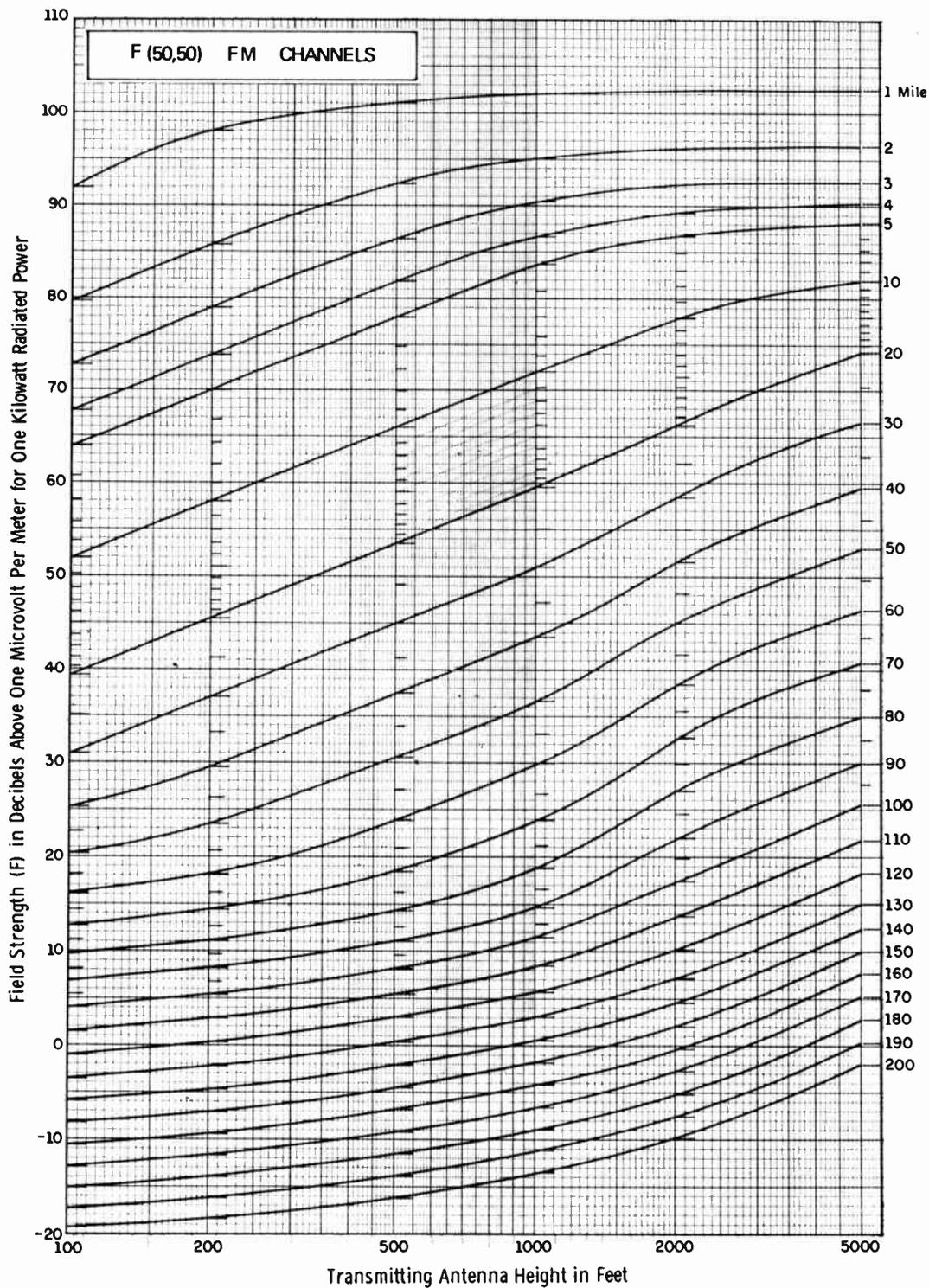
This section consists of the following Figures 1, 1a, and slider, 2, 3, 4 and 5.

**[Effectiveness of § 73.333, Figures 4 & 5 STAYED UNTIL FURTHER ORDER OF THE COMMISSION]**



FCC § 73.333, FIGURE 2

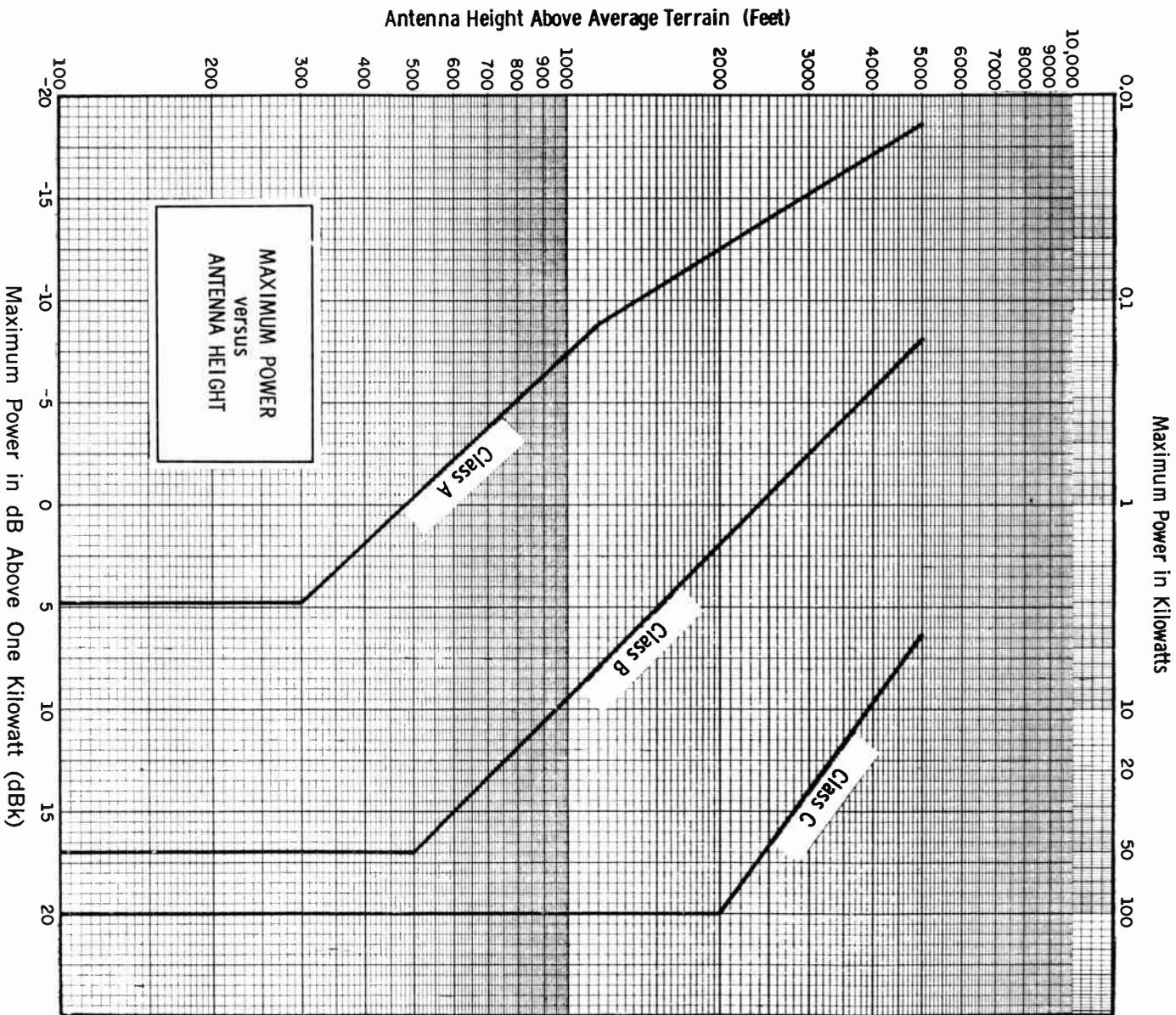




**FM CHANNELS**  
 ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
 OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 50 PERCENT  
 OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 30 FEET

FCC §73.333 FIGURE 1

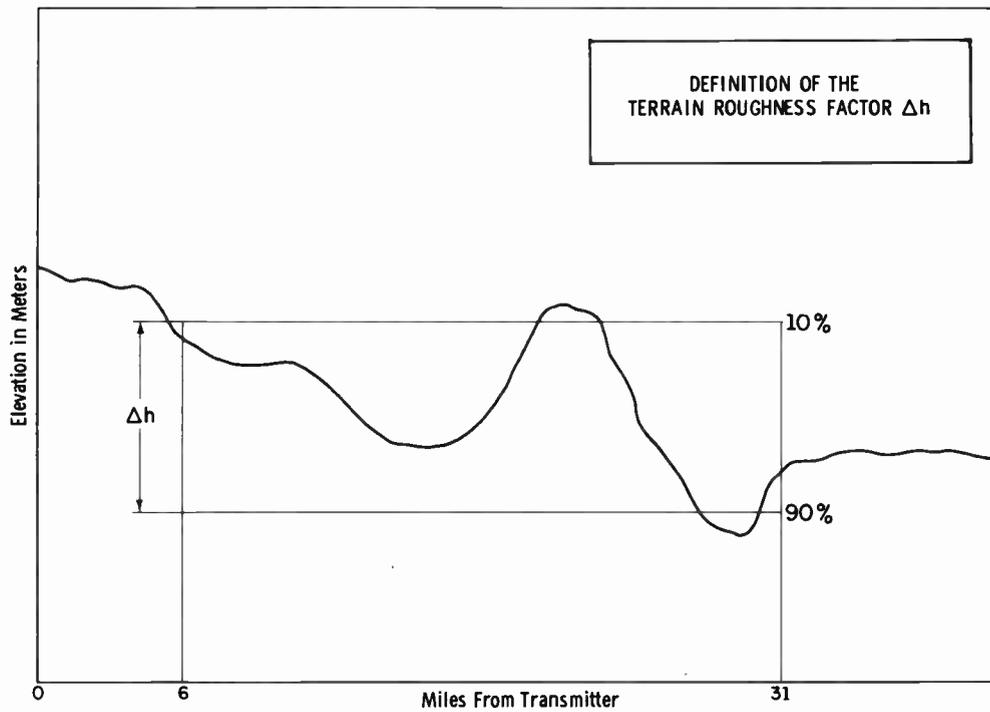




MAXIMUM POWER  
VERSUS  
ANTENNA HEIGHT

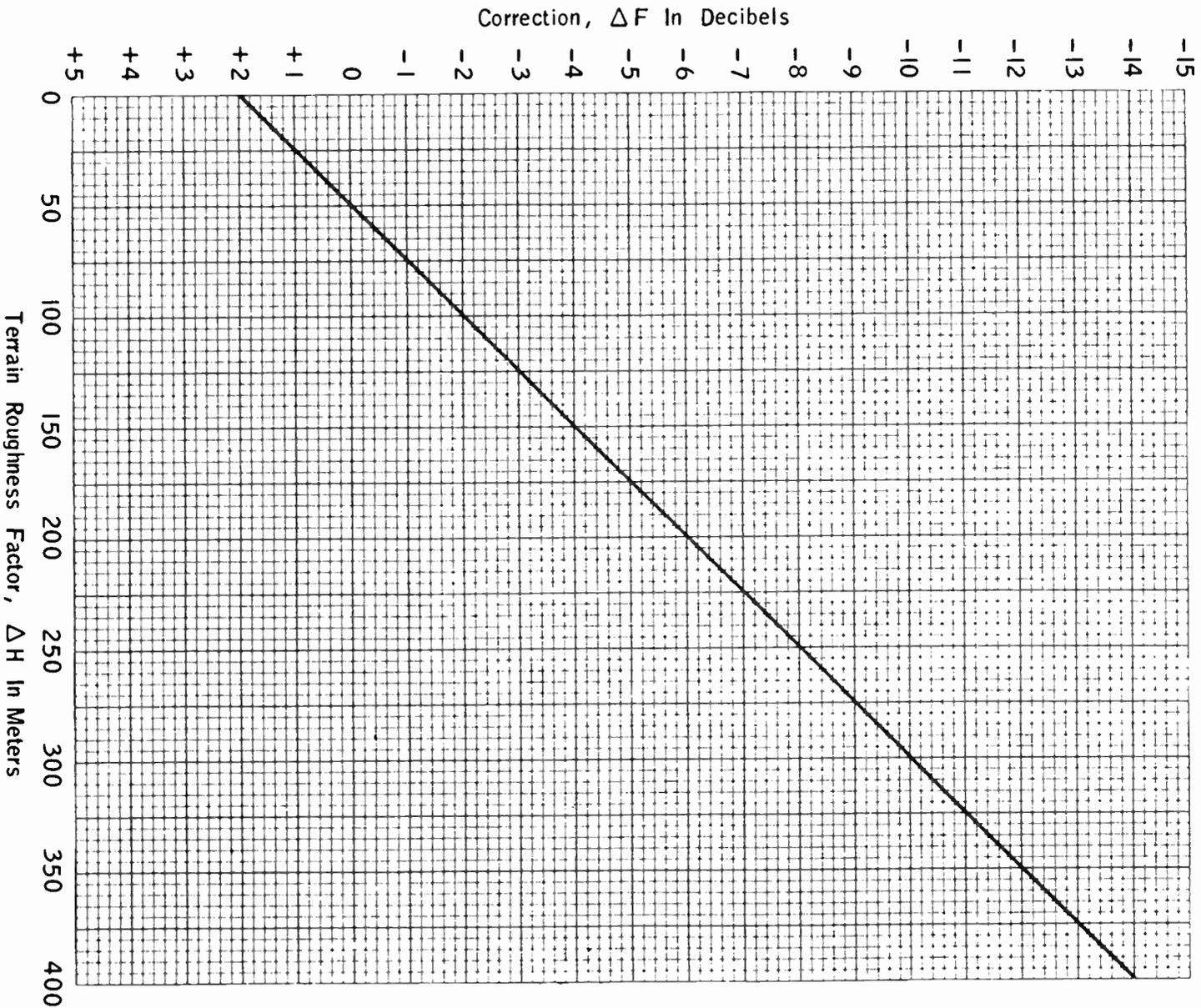
FCC § 73.333, FIGURE 3  
[Revised 2-10-70]





FCC §73.333 FIGURE 4





§ 73.333, FIGURE 5

**TERRAIN ROUGHNESS CORRECTION**

for use with estimated FM F(50,50) and F(50,10) field strength curves



### § 73.340 Use of automatic transmission systems (ATS).

(a) The licensee of an FM broadcast station may utilize an automatic transmission system (ATS) in accordance with this section and §§ 73.342, 73.344, and 73.346 in lieu of either direct or remote control of the station transmitting system.

(b) Authorization to use an automatic transmission system may be obtained by submitting an informal request to the Commission in Washington, D.C. Such request shall be signed by the licensee and contain a statement certified by the station's chief operator, technical director, or consulting engineer showing that the station has installed and fully tested all the necessary apparatus for ATS operation and that the station is in full compliance with the prescribed technical standards for ATS operation and all other technical standards in this subpart applicable to the particular class of station.

(c) Upon receipt of notification from the Commission, the station can commence full ATS operation under the following special conditions:

(1) The operating log entries specified in § 73.1820 need not be made.

(2) [Reserved].

(3) The station may employ at least one radiotelephone first-class operator in accordance with the provisions of § 73.265(c) and in lieu of the requirements of § 73.265(d).

(4) In lieu of the schedule of transmitting system equipment inspections specified in § 73.265(h), the inspections shall be made once each calendar month with intervals between successive required inspections not to be less than 20 days.

(5) Continuous operation of the station modulation monitor is not required.

(d) A station utilizing ATS must comply with the provisions of Subpart G of this part at all times.

(e) The transmitting apparatus must be manually activated at the beginning of each broadcast day.

**[§ 73.340(c)(2) removed and marked "Reserved" eff. 4-30-80; III(80)-1]**

### § 73.342 Automatic transmission system facilities.

(a) The licensee of an FM broadcast station may design, construct, install, and test the necessary equipment for ATS operation or obtain, install and test such equipment if it is compatible with the transmitting equipment with which it is to be used. The licensee may, without further authority, make the necessary modifications in the station transmitting equipment to accommodate ATS monitoring and control devices provided that the transmitting system will comply with all applicable technical specifications included in the regulations of this subpart.

(b) The transmitting apparatus of and FM station utilizing an automatic transmission system shall be equipped according to the following:

(1) The control system must have devices to moni-

tor and control the output power of the transmitter either by the direct or indirect method as described in § 73.267(b) and (c).

(2) The control system must have devices to automatically adjust to transmitter output power to the authorized power for each mode of operation within the range specified in § 73.267(b). If the automatic control device is unable to adjust the output power to a level below 105% of the authorized power after 3 minutes or upon a total of 3 samplings, the emissions of the station will terminate.

(3) The transmitting system must have a device that will detect and adjust the peak level of modulation. If the modulation exceeds more than 10 bursts of 100% modulation within a one minute period as measured at the output terminals of the transmitter, the program audio input signal to the transmitter modulators shall be automatically adjusted downward until these limits are not exceeded. For the purposes of this requirement, a sequence of repetitive instances of modulation exceeding the prescribed limits occurring within a single 5 millisecond interval will be considered to be one burst. The station shall comply with the provisions of § 73.1570 with respect to the minimum modulation levels.

(c) If the station engages in SCA operations, the transmission system shall be equipped with an automatic limiting device to prevent excessive modulation deviation of the SCA subcarrier.

(d) [Reserved].

(e) The ATS control equipment shall be designed to terminate the station transmissions in accordance with § 73.344.

(f) The ATS control equipment shall be designed to provide an alarm signal at an authorized monitoring and alarm point in accordance with § 73.346.

(g) If the station is authorized to use an alternate main or auxiliary transmitter, the ATS control equipment may incorporate circuits to automatically activate such transmitters if they are fully equipped for ATS operation, although such transmitter switching features are not required.

(h) The sampling of modulation levels must be on a continuous basis. All other required sampling of transmitting system functions shall be made at intervals not exceeding one minute.

(i) The ATS equipment shall have facilities to permit testing of the automatic control and alarm devices. The testing may be accomplished without interrupting the station transmission, provided that the test facilities are designed so that they cannot inadvertently or purposefully be used to override the automatic operation of the transmission system.

(j) An FM station may, without specific authority from the FCC, use a subcarrier frequency for automatic transmission system telemetry in accordance with the technical provisions of this subpart and § 73.319, and upon installation of a modulation monitor type approved for monitoring FM subcarrier transmissions.

The subcarrier logging requirements specified in § 73.295(f) are not applicable to ATS telemetry operations.

**§ 73.344 Fail-safe transmitter control for automatic transmission systems.**

(a) The ATS control system for an FM broadcast station must incorporate circuits that will terminate the radiations of station in the event of any of the following conditions within the time interval specified:

(1) Failure of the automatic power adjustment circuits if the automatic power adjustment controls do not correct an over power condition (antenna input power exceeding 105% of the authorized power) for a three minute period.

(2) Failure of the automatic modulation adjustment circuits to prevent excessive modulation levels from continuing uncorrected for a period exceeding three consecutive minutes.

(3) [Reserved].

(4) Failure of the circuit to the ATS monitoring and alarm point for a period exceeding 3 minutes which prevents the transmitter from being turned off from that point.

(5) Failure in any of the required alarm system functions as required by § 73.346 exceeding 3 consecutive minutes.

(6) Any loss of the required ATS sampling functions for a period exceeding 3 minutes.

(b) If the transmissions of the station terminate due to any of the conditions listed in paragraph (a) of this Section, operation of the station may resume under manual control of the transmitter, either with an operator holding the proper class of license or permit on duty at the transmitter site or at an authorized remote control point, provided that any out of tolerance condition which may have caused the termination of transmission is corrected upon resumption of manual control of the transmitter.

(c) If termination of the station transmission was caused by any failure of the ATS control or alarm function, ATS operation of the station shall not be resumed until all necessary repairs or adjustments have been completed and a notation made in the station's maintenance log showing the nature or cause of the ATS malfunction and a certification entered into the log by the station's radiotelephone first-class operator that all required ATS functions are fully restored.

**§ 73.346 Automatic transmission system monitoring and alarm points.**

(a) Each FM broadcast station operating an automatic transmission system shall be provided with one or more ATS monitoring and alarm points. A station employee holding at least a restricted radiotelephone operator permit shall be on duty at one such point at all times when the station is in operation. The ATS monitoring and alarm point location may be at the

transmitter site, the main studio, an authorized remote control point, or at another authorized location. If the licensee wishes to establish an ATS monitoring and alarm point other than at the station transmitter, main studio, or an authorized remote control point, an informal request is to be submitted to the Commission in Washington, D.C. with a description of the location of the point and stating the basis for its selection. All ATS monitoring and alarm points shall be under the control of, or available to, the licensee at all times. Provisions shall be made so that unauthorized persons cannot activate the transmitting system from such points.

(b) The following ATS controls or alarm functions shall be installed at each ATS monitoring and control point to be utilized:

(1) A means to turn the transmitting apparatus on and off at all times.

(2) An off air monitoring receiver for observing the station's transmitted program signal and SCA program signal if SCA is utilized.

(3) An aural alarm signal as specified in paragraph (c) of this section.

(c) An aural alarm at the ATS control and monitoring point shall activate in event of any of the following conditions:

(1) The transmissions of the station are interrupted for a period exceeding three minutes.

(2) The transmitter output power falls below 90% of the authorized value to be used if not automatically corrected within 3 minutes.

(3) An alarm that would indicate any failure of the tower lighting equipment unless arrangements are made for visual observations of the condition of the tower lighting as required in § 17.47(a) of this chapter.

(d) In addition to the aural alarms specified in paragraph (c) of this section, the licensee may install visual alarms or signals, and alarm circuits indicating other conditions at the transmitter site provided that there can be recognition between the required alarm signals and those not required.

(e) Whenever a required alarm condition occurs, the alarm signal shall remain continuously activated until the condition causing the alarm is corrected or manual control of the transmitting system is assumed, provided that if a visual alarm is also provided, the aural alarm may be turned off if the visual alarm remains activated. A notation shall be made in the station's operating log of the time and duration of any ATS alarm conditions.

(f) The station employee on duty at the ATS monitoring and alarm point is not restricted to a specific duty position provided that such person can monitor the off-air signal and alarm signal at all times. If that employee is the only person in attendance at the station, that person must also be able to observe and respond to an EBS alert as required by Subpart G of this part.

(g) The station employees on duty at the ATS monitoring and alarm points shall be fully instructed in procedures to take in the event of a malfunction of the transmission system and receipt of an EBS alert.

(h) Station and operator licenses shall be posted at each ATS monitoring and alarm point according to the provisions of § 73.1230.



**SUBPART C—NONCOMMERCIAL EDUCATIONAL FM BROADCAST STATIONS**

**CLASSIFICATION OF STATIONS AND ALLOCATION OF FREQUENCIES**

**§ 73.501 Channels available for assignment.**

(a) The following frequencies, except as provided in paragraph (b) of this section, are available for non-commercial educational FM broadcasting:

Frequency (MHz) :	Channel No.	Frequency (MHz) :	Channel No.
87.9-----	<sup>1</sup> 200	90.1-----	211
88.1-----	201	90.3-----	212
88.3-----	202	90.5-----	213
88.5-----	203	90.7-----	214
88.7-----	204	90.9-----	215
88.9-----	205	91.1-----	216
89.1-----	<sup>2</sup> 206	91.3-----	217
89.3-----	207	91.5-----	218
89.5-----	208	91.7-----	219
89.7-----	209	91.9-----	220
89.9-----	210		

<sup>1</sup> The frequency 87.9 MHz, Channel 200, is available only for use of existing Class D stations required to change frequency. It is available only on a noninterference basis with respect to TV Channel 6 stations and adjacent channel noncommercial education FM stations. It is not available at all within 402 kilometers (250 miles) of Canada and 320 kilometers (199 miles) of Mexico. The specific standards governing its use are contained in Section 73.512.

<sup>2</sup> The frequency 89.1 MHz, Channel 206, in the New York City metropolitan area, is reserved for the use of the United Nations with the equivalent of an antenna height of 500 feet above average terrain and effective radiated power of 20 kW and the Commission will make no assignments which would cause objectionable interference with such use.

(b) In Alaska, the frequency band 87.9–100 MHz is allocated exclusively to Government radio services and non-Government fixed service. The frequencies 87.9 MHz–91.9 MHz (Channels 200 through 220, exclusive) will not be assigned in Alaska for use by noncommercial educational FM broadcast stations; however, the frequencies 100.1–107.9 MHz (Channels 261 through 300, inclusive) are available for such use under the allocation provisions in Subpart B, §§ 73.201–73.213. Such noncommercial educational assignments will be designated by an asterisk. Noncommercial educational FM stations using Class A channels in Alaska are exempt from the minimum effective radiated power requirements specified in § 73.211(a) and from the “freeze” on the acceptance of applications proposing facilities of less than 100 watts effective radiated power contained in the note at the end of § 73.3573. (However, they are subject to certain other requirements applicable to stations operating on commercial channels. See § 73.513.)

(c) There are specific noncommercial educational FM assignments (Channels 201–220) for various communities in Arizona, California, New Mexico and Texas. These are set forth in § 73.504.

**[§ 73.501(b) revised eff. 4-30-80; III(80)-1]**

**§ 73.502 State-wide plans.**

In considering the assignment of a channel for a noncommercial educational FM broadcast station, the Commission will take into consideration the extent to

which each application meets the requirements of any state-wide plan for noncommercial educational FM broadcast stations filed with the Commission, provided that such plans afford fair treatment to public and private educational institutions, urban and rural, at the primary, secondary, higher, and adult educational levels, and appear otherwise fair and equitable.

**§ 73.503 Licensing requirements and service.**

The operation of, and the service furnished by noncommercial educational FM broadcast stations shall be governed by the following:

(a) A noncommercial educational FM broadcast station will be licensed only to a nonprofit educational organization and upon showing that the station will be used for the advancement of an educational program.

(1) In determining the eligibility of publicly supported educational organizations, the accreditation of their respective state departments of education shall be taken into consideration.

(2) In determining the eligibility of privately controlled educational organizations, the accreditation of state departments of education and/or recognized regional and national educational accrediting organizations shall be taken into consideration.

(b) Each station may transmit programs directed to specific schools in a system or systems for use in connection with the regular courses as well as routine and administrative material pertaining thereto and may transmit educational, cultural, and entertainment programs to the public.

(c) A noncommercial educational FM broadcast station may broadcast programs produced by, or at the expense of, or furnished by persons other than the licensee, if no other consideration than the furnishing of the program and the costs incidental to its production and broadcast are received by the licensee. The payment of line charges by another station, network, or someone other than the licensee of a noncommercial educational FM broadcast station, or general contributions to the operating costs of a station, shall not be considered as being prohibited by this paragraph.

(d) Each station shall furnish a nonprofit and noncommercial broadcast service. Noncommercial educational FM broadcast stations are subject to the provisions of § 73.1212 to the extent that they are applicable to the broadcast of programs produced by, or at the expense of, or furnished by others; however, no announcements promoting the sale of a product or service shall be broadcast in connection with any program.

NOTE 1: Announcements of the producing or furnishing of programs, or the provision of funds for their production, may be made no more than twice, at the opening and at the close of any program, except that where a program lasts longer than 1 hour an announcement may be made at hourly intervals during the program if the last such announcement occurs at least 15 minutes before the announcement at the close of the program. The person or organization furnishing or producing the program, or providing funds for its production, shall be identified by name only, except that in the case of a commercial company having *bona fide* operating divisions or subsidiaries one of which has furnished the program or



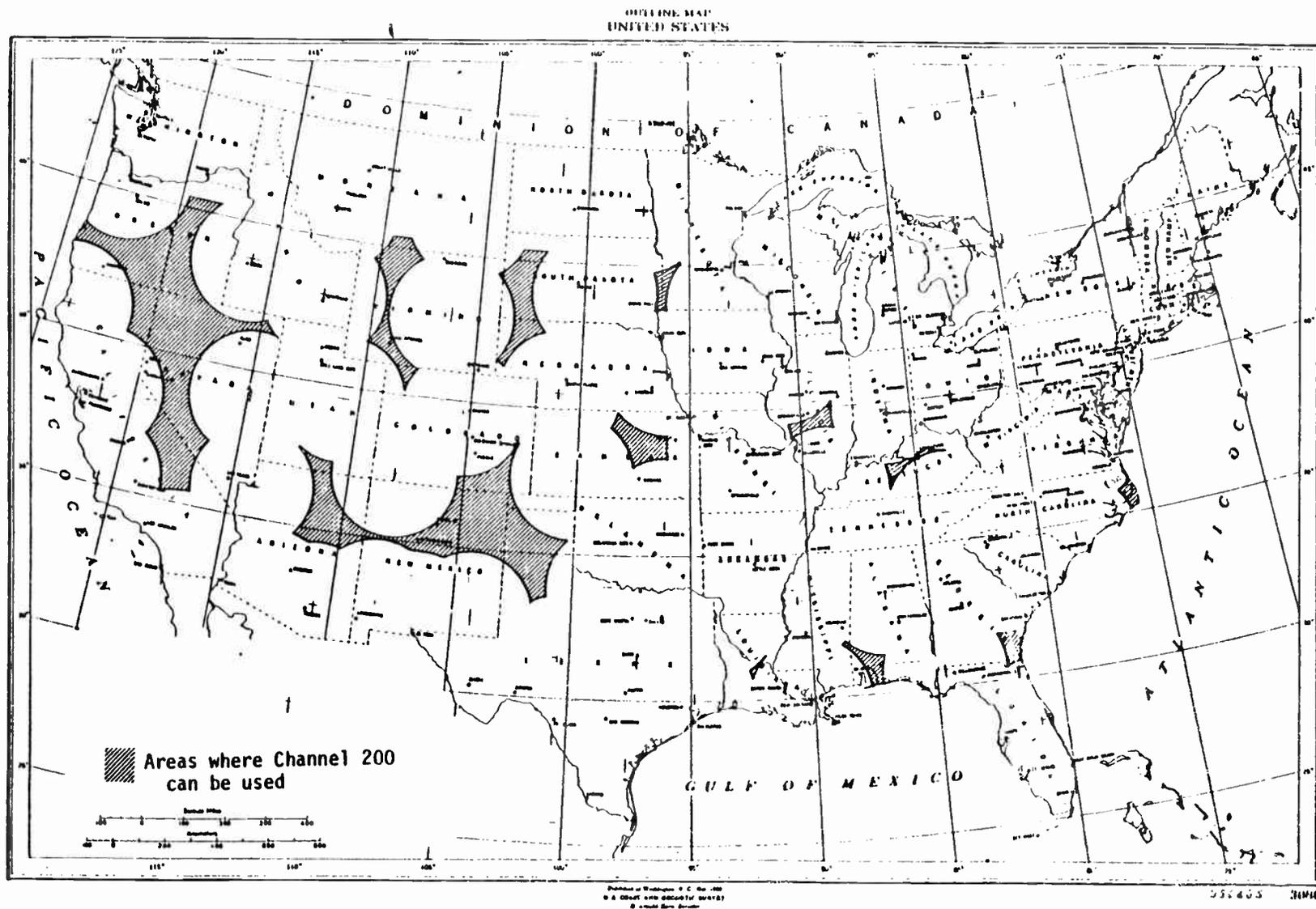


FIGURE 1



funds, the division or subsidiary may be mentioned in addition to or instead of the commercial company. No material beyond the company (or division or subsidiary) name shall be included. Upon request for waiver of this provision, the Commission may authorize the inclusion of brief additional descriptive material only when deemed necessary to avoid confusion with another company having the same or a similar name. No mention shall be made of any product or service with which a commercial enterprise being identified has a connection, except to the extent the name of the product or service is the same as that of the enterprise (or division or subsidiary) and is so included. A repeat broadcast of a particular program is considered a separate program for the purpose of this note.

**NOTE 2:** Announcements may be made of general contributions of a substantial nature which make possible the broadcast of programs for part, or all, of the day's schedule. Such announcements may be made at the opening and closing of the day or segment, including all of those persons or organizations whose substantial contributions are making possible the broadcast day or segment. In addition, one such general contributor may be identified once during each hour of the day or segment. The provisions of Note 1 of this section as to permissible contents apply to announcements under this note.

**NOTE 3:** The limitations on credit announcements imposed by Notes 1 and 2 of this section shall not apply to program material, the production of which was completed before January 1, 1971, or to other announcements broadcast before January 1, 1971, pursuant to underwriting agreements entered into before November 30, 1970.

**NOTE 4:** The provisions of Notes 1 and 2 of this section shall not apply during the broadcast times in which "auctions" are held to finance station operation. Credit announcements during "auction" broadcasts may identify particular products or services, but shall not include promotion of such products or services beyond that necessary for the specific auction purpose.

**NOTE 5:** The numerical limitations on permissible announcements contained in Notes 1 and 2 of this section do not apply to announcements on behalf of noncommercial, non-profit entities, such as the Corporation for Public Broadcasting, State or regional entities, or charitable foundations.

**§ 73.504 Channel assignments under the USA-Mexico FM Broadcast Agreement.**

(a) The Governments of Mexico and the United States are parties to an Agreement providing a table

of allotments of FM channels in the area within 199 miles (320 kilometers) of the common border. The following table sets forth the assignments of Classes A, B, and C noncommercial educational FM channels (201-220) to communities in the affected portions of Arizona, California, New Mexico, and Texas:

Arizona :	Channel No.
Ajo -----	220.
Douglas -----	201, 205A, 211A.
Globe -----	211A.
Kingman -----	211A, 220.
Lake Havasu City .....	216A.
Nogales -----	217.
Parker -----	211A.
Phoenix -----	202, 208A, 212A, 218.
Prescott -----	208A, 214.
Safford -----	215, 220A.
Tucson -----	213.
Whiteriver -----	201A.
Wickenburg -----	209A.
Yuma -----	201A, 205A.
<b>California :</b>	
Avalon -----	204A.
Claremont -----	204A.
Long Beach -----	201A.
Los Angeles -----	205A, 214, 218.
Mission Viejo -----	203A.
Moorpark -----	216.
Northridge -----	203A.
Oxnard -----	212.
Pasadena -----	207.
Redlands -----	206A.
Riverside -----	209A.
San Bernardino -----	220.
San Diego -----	202A, 208.
Santa Barbara -----	204, 220.
Santa Monica -----	210.

**[Amended in III (80)-1:**

*Eff. 9-8-80:*

*Lake Havasu City, Ariz. Added*

*Eff. 8-7-81:*

*McNary, Ariz. Removed*

*Eff. 8-7-81:*

*Whiteriver, Ariz. Added]*

New Mexico:

Alamogordo .....	201, 208A.
Artesia .....	219A.
Carlsbad .....	211A, 215.
Deming .....	218A.
Hobbs .....	211A.
Las Cruces.....	209A, 214.
Lordsburg .....	220A.
Lovington .....	220A.
Roswell .....	213, 217A.
Silver City.....	212, 217A.
Socorro .....	208A, 216.
Truth or Consequences..	220A.

Texas:

Channel No.

Alpine .....	219.
Andrews .....	209A.
Austin .....	204A, 208, 213.
Ballinger .....	211A.
Beeville .....	218A.
Big Lake.....	211A.
Big Spring.....	203, 207A.
Bracketville .....	212A.
Brady .....	219A.
Brownsville .....	202A.
Brownwood .....	205, 212A.
Carrizo Springs.....	201A.
Coleman .....	220A.
Colorado City.....	211A.
Corpus Christi.....	212, 220A.
Cotulla .....	203A.
Crane .....	205A.
Crystal City.....	214A.
Cuero .....	210A.
Del Rio.....	204, 214A.
Eagle Pass.....	208, 213A.
Edinburg .....	203A.
Eldorado .....	219A.
El Paso.....	203, 208A.
Falfurrias .....	218A.
Fort Stockton.....	201, 206A.
Fredericksburg .....	201A.
Freer .....	214A.
Goliad .....	216A.
Gonzales .....	220A.
Harlingen .....	205A.
Hebbronville .....	220A.
Hondo .....	202A.
Junction .....	212A.
Kenedy-Karnes .....	201A.
Kermit .....	212A.
Kerrville .....	216A.
Kingsville .....	216A.

Texas—Continued

Channel No.

Lamesa .....	210A.
Laredo .....	201A, 210.
Llano .....	203A.
Marfa .....	203A.
Midland .....	211A.
Monahans .....	210A.
Odessa .....	213A, 217.
Ozona .....	213A.
Pecos .....	205A.
Port Lavaca.....	201A.
Presidio .....	202A.
Raymondville .....	201A.
Rio Grande City.....	201A.
Rockport .....	217A.
Rocksprings .....	210A.
San Angelo.....	215, 220A.
San Antonio.....	206, 211A, 215A, 219A.
Sanderson .....	207A.
San Marcos.....	218A.
San Saba.....	210A.
Seguin .....	202A.
Seminole .....	205A.
Sonora .....	211A.
Sweetwater .....	213A.
Uvalde .....	216A.
Van Horn.....	202A.
Victoria .....	203A.
Zapata .....	202A.

(b) Anyone applying for a noncommercial educational FM station in the border area of Arizona, California, New Mexico, or Texas, must propose at least Class A minimum facilities [see Section 73.211(a)] and apply for a channel set forth in the table in paragraph (a) for use either at the listed community or an unlisted community under the same conditions set forth in § 73.203(b) of this Chapter; *Provided, however*, That existing Class D noncommercial educational stations may apply to change frequency within the educational portion of the FM band in accordance with the requirements set forth in § 73.512.

(c) The minimum mileage separations set forth in § 73.207 of this Chapter and the Note thereto shall apply to:

(1) A petition for rule making to amend the table set forth in paragraph (a) and;

(2) Except for Class D stations changing channel pursuant to § 73.512, to an application for any class of noncommercial educational FM channel (new station, or change in channel or transmitter site or increase in facilities of an existing station) within the border area referred to in paragraph (a). Any petition to amend

which so conflicts will be dismissed. Any application which does not so conform will not be accepted for filing. No authorization for a noncommercial educational station will be granted for a station in the United States in the area adjacent to the border area which does not meet the minimum mileage separations set forth in § 73.207 to any noncommercial educational allotment or authorization in the border area.

(d) Section 73.208 of this chapter will be complied with as to the determination of reference points and distance computations in considering petitions to amend the table set forth in paragraph (a) and for applications for new or changed facilities. However, if it is necessary to consider a Mexican channel assignment or authorization, the computation of distance will be determined as follows: if a transmitter site has been established, on the basis of the coordinates of the site; if a transmitter site has not been established, on the basis of the reference coordinates of the community, town, or city.

§ 73.505 Zones.

For the purpose of assignment of noncommercial educational FM stations, the United States is divided into three zones, Zone I, Zone I-A, and Zone II, having the boundaries specified in § 73.205.

§ 73.506 Classes of educational channels, and stations operating thereon.

(a) Noncommercial educational stations operating on the channels specified in § 73.501 are divided into the following classes:

(1) A Class D educational station is one operating with no more than 10 watts transmitter power output.

(2) A Class D educational (secondary) station is one operating with no more than 10 watts transmitter power output in accordance with the terms of § 73.512 or which has elected to follow these requirements before they become applicable under the terms of § 73.512.

(3) Noncommercial educational stations with more than 10 watts transmitter power output are classified as Class A, Class B, or Class C, depending on the effective radiated power and antenna height above average terrain, and the zone in which the station's transmitter is located, on the same basis as provided in §§ 73.205, 73.206 and 73.211 for stations on the non-reserved FM channels. Where a station is authorized with more than 3 kilowatts (4.8 dBk) effective radiated power, or coverage greater than that obtained by the equivalent of 3 kilowatts effective radiated power and 91.5 meter (300 foot) antenna height above average terrain, it is classified as a Class B station if its transmitter is lo-

cated in Zone I or Zone I-A, and as a Class C station if its transmitter is located in Zone II. Class A stations may be assigned in all zones.

(b) Class A, B and C noncommercial educational stations may be assigned to any of the channels set forth in § 73.501. Existing Class D noncommercial educational FM stations may continue to operate on their present channels and pending applications for new Class D stations may be granted to permit operation on the channel proposed, but in both instances such operations shall be subject to the provisions of § 73.512.

§ 73.507 Minimum distance separation between stations.

(a) *Minimum distance separations.* No application for a new station, or change in channel or transmitter site or increase in facilities of an existing station, will be granted unless the proposed facilities will be located so as to meet the adjacent channel distance separations specified in § 73.207(a) for the class of station involved with respect to assignment on Channels 221, 222 and 223 listed in § 73.201 (except where in the case of an existing station the proposed facilities fall within the provisions of § 73.207(b)), or where a Class D station is changing frequency to comply with the requirements of § 73.512.

(b) Stations authorized as of September 10, 1962, which do not meet the requirements of paragraph (a) of this Section and § 73.511, may continue to operate as authorized; but any application to change facilities will be subject to the provisions of this section.

(c) Stations separated in frequency by 10.6 or 10.8 MHz (53 or 54 channels) from stations or assignments on commercial channels will not be authorized unless they conform to the following separation table:

Class of stations:	Required spacing	
	Kilometers	Miles
A to A.....	8.1	5
B to A.....	16.1	10
B to B.....	24.2	15
C to A.....	32.2	20
C to B.....	40.3	25
C to C.....	48.3	30

NOTE.—Under the United States-Mexican FM Broadcasting Agreement, for stations and assignments separated in frequency by 10.6 to 10.8 MHz (53 or 54 channels), the following mileage separations (see paragraph (c) of this Section) to Mexican allocations or assignments must be adhered to:

Class of station:	Required spacing	
	Kilometers	Miles
C to D.....	24.2	15
B to D.....	16.1	10
A to D.....	8.1	5
D to D.....	3.2	2

This note applies to noncommercial educational assignments and authorizations in the border area and for stations in the United States adjacent to assignments and stations in the border area.

**§ 73.508 Standards of good engineering practice.**

(a) All noncommercial educational stations operating with more than 10 watts transmitter output power shall be subject to all of the provisions of the FM Technical Standards contained in Subpart B of this part. Class D educational stations shall be subject to the definitions contained in § 73.310 of Subpart B of this part, and also to those other provisions of the FM Technical Standards which are specifically made applicable to them by the provisions of this subpart.

(b) The transmitter and associated transmitting equipment of each noncommercial educational FM station licensed for transmitter output power above 10 watts must be designed, constructed and operated in accordance with § 73.317.

(c) The transmitter and associated transmitting equipment of each noncommercial educational FM station licensed for transmitter power output of 10 watts or less, although not required to meet all requirements of § 73.317, must be constructed with the safety provisions of the current national electrical code as approved by the American Standards Association. These stations must be operated, tuned, and adjusted so that emissions are not radiated outside the authorized band causing or which are capable of causing interference to the communications of other stations. The audio distortion, audio frequency range, carrier hum, noise level, and other essential phases of the operation which control the external effects, must be at all times capable of providing satisfactory broadcast service. Studio equipment properly covered by an underwriter's certificate will be considered as satisfying safety requirements.

【§ 73.508(b) revised eff. 4-30-80; III(80)-1】

**§ 73.509 Protection from interference.**

(a) No application for a facility on any channel in § 73.501 of this Chapter will be accepted if the requested facility either would cause objectionable interference within the 1 mV/m contour of any co-channel or adjacent channel station other than Class D (secondary) or, except in the case of Class D (secondary) proposals, receive interference within the proposed 1 mV/m contour.

(b) No application for use of any commercial FM channel by a Class D (secondary) station will be accepted if the requested facility would cause objectionable interference within the 1 mV/m contour of any co-channel or adjacent-channel station.

(c) No application for FM Channel 200 will be accepted if the requested facility would cause interference within the 1 mV/m contour of any co-channel Class D (secondary) station on Channel 200 or any adjacent-channel station on Channels 201, 202 and 203. The standards set forth in paragraph (a) 1-3 shall be used to determine the existence of objectionable interference.

(d) The following standards shall be used to determine the existence of objectionable interference:

(1) The distance to the 1 mV/m contour shall be determined by the use of Figure 1 of § 73.333 (F(50,50) curve) of this Chapter (see § 73.313(c)(1)).

(2) The distance to the applicable interference contour shall be determined by the use of Figure 1a of § 73.333 (F(50,10) chart) of this Chapter.

(3) Objectionable interference will be considered to exist if, on the basis of the curves referred to in this subparagraph, the ratio of undesired to desired signal exceeds: 1:10 for co-channel; 1:2 for first adjacent channel (200 kHz removed); 10:1 for second adjacent channel (400 kHz removed); and 100:1 for third adjacent channel (600 kHz removed).

(e) No application for FM Channel 200 will be accepted if the requested facility would cause interference to Channel 6 operations, including TV translators on this channel. Such objectionable interference will be considered to exist whenever the 15 dBu contour based on the F 50(10) curves in Section 73.333 Figure 1a of the proposal would overlap the 40 dBu contour based on the F 50(50) curves in Section 73.699 Figure 9, of the television station.

**§ 73.510 Antenna systems.**

(a) All noncommercial educational stations operating with more than 10 watts transmitter output power shall be subject to the provisions of § 73.316 concerning antenna systems contained in Subpart B of this part.

(b) *Directional antenna.* No application for a construction permit of a new station, or change in channel, or change in an existing facility on the same channel will be accepted for filing if a directional antenna with a maximum-to-minimum ratio of more than 15 dB is proposed.

**§ 73.511 Power and antenna height requirements.**

(a) Except as provided in Section 73.504(b), no provision as to a minimum facility for an FM broadcast station shall apply to a noncommercial educational station operating on a channel specified in § 73.501(a); and no provision as to a maximum facility shall apply to a noncommercial educational station on Channels 201 to 217, inclusive. However, any application other than a Class D (secondary) station application filed pursuant to Section 73.512, specifying a facility below the minimum of 100 watts effective radiated power will not be accepted for filing (see Note to § 73.3573) and any application exceeding the maximum set forth in § 73.211 will not be necessarily granted; see *Notice of Inquiry* in Docket No. 14185 as concerns educational FM matters (5 F.C.C. 2d 587, 588, fn. 2 (1966); see also 13 F.C.C. 2d 751 (1968) and 17 F.C.C. 2d 496 (1969) and Docket 20735 (41 FR 16973).

(b) On Channels 218, 219, and 220 specified in § 73.501, no Class B or Class C educational station will be authorized with effective radiated power greater than that specified in § 73.211(b) (1) for the respective class of station, and the maximum effective radiated power permissible shall also be subject to the provisions of § 73.211(b) (2).

**§ 73.512 Special procedures applicable to Class D non-commercial educational stations.**

(a) All Class D stations seeking renewal of license for any term expiring June 1, 1980, or thereafter shall comply with the requirements set forth below and shall simultaneously file an application on FCC Form 340, containing full information regarding such compliance with the provisions set forth below.

(1) To the extent possible, each applicant shall select a commercial FM channel on which it proposes to operate in lieu of the station's present channel. The station may select any commercial channel provided no objectionable interference, as set forth in § 73.509(b), would be caused. The application shall include the same engineering information as is required to change the frequency of an existing station and any other information necessary to establish the fact that objectionable interference would not result. If no commercial channel is available where the station could operate without causing such interference, the application shall set forth the basis upon which this conclusion was reached. This procedure applies throughout the continental United States except that stations in the area within 320 kilometers (199 miles) of Mexico do not have to comply with this requirement, in which case such parties shall follow the procedures in paragraph (3) below.

(2) If a commercial channel is unavailable, to the extent possible each applicant should propose operation on Channel 200 (87.9 MHz) unless the station would be within 402 kilometers (250 miles) of the Canadian border or 320 kilometers (199 miles) of the Mexican border or would cause interference to an FM station operating on Channels 201, 202 or 203 or to TV Channel 6, as provided in § 73.509.

(3) If a channel is not available under either (1) or (2) above, the renewal applicant shall study all 20 noncommercial educational FM channels and shall propose operation on the channel which would cause the least preclusion to the establishment of new stations or increases in power by existing stations. Full information regarding the basis for the selection should be provided.

(b) At any time before the requirements of paragraph (a) become effective, any existing Class D station may file a construction permit application on FCC

Form 340 to change channel in the manner described above which shall be subject to the same requirements. In either case, any license granted shall specify that the station's license is for a Class D (secondary) station.

(c) Except in Alaska, no new Class D applications nor major change applications by existing Class D stations are acceptable for filing except by existing Class D stations seeking to change frequency. Upon the grant of such application, the station shall become a Class D (secondary) station.

(d) Class D noncommercial educational (secondary) stations (see § 73.506(a) (2)) will be permitted to continue to operate only so long as no interference (as defined in § 73.509) is caused to any TV or commercial FM broadcast station. In the event that the Class D (secondary) station would cause interference to a TV or commercial FM broadcast station after that Class D (secondary) station is authorized, the Class D (secondary) station must cease operation when program tests for the TV or commercial FM broadcast station are authorized. The Class D (secondary) station may apply for a construction permit (see § 73.3533(a) (6)) to change to another frequency or antenna site where it would not cause interference (as defined in § 73.509). If the Class D (secondary) station must cease operation before the construction permit is granted, an application for temporary authorization (pursuant to § 73.3542 and 47 U.S.C. 390(f)) to operate with the proposed facilities may be submitted; where appropriate, such temporary authorization can be granted.

**§ 73.513 Noncommercial educational FM stations operating on unreserved channels.**

Noncommercial educational FM stations other than Class D (secondary) which operate on Channels 261 through 300 but which comply with § 73.503 as to licensing requirements and the nature of the service rendered, must comply with the provisions of the following Sections of Subpart B: § 73.201 through § 73.213 (Classification of FM Broadcast Stations and Allocations of Frequencies) and such other Sections of Subpart B as are made specially applicable by the provisions of this Subpart C. Stations in Alaska using Channels 261-300 need not meet the minimum effective radiated power requirement specified in § 73.211(a). In all other respects, stations operating on Channels 261 through 300 are to be governed by the provisions of this Subpart and not Subpart B.

**§ 73.514 Cross reference to rules in other parts.**

See § 73.1010.

**§ 73.515 Notification of filing of applications.**

See § 73.1030.

## § 73.516 Equipment tests.

See § 73.1610.

## § 73.517 Program tests.

See § 73.1620.

## § 73.518 Normal license period.

See § 73.1020.

## § 73.531 Special rules relating to contracts providing for reservation of time upon sale of a station.

See § 73.1150.

【§ 73.531 added *eff.* 4-30-80; III(80)-1】

## EQUIPMENT

## § 73.540 Use of automatic transmission systems (ATS).

(a) The licensee of a noncommercial educational FM broadcast station may utilize an automatic transmission system (ATS) in accordance with this section and §§ 73.542, 73.544 and 73.546 in lieu of either direct or remote control of the station transmitting system.

(b) Authorization to use an automatic transmission system may be obtained by submitting an informal request to the Commission in Washington, D.C. Such request shall be signed by the licensee and contain a statement certified by the station's chief operator, technical director, or consulting engineering showing that the station has installed and fully tested all the necessary apparatus for ATS operation and that the station is in full compliance with the prescribed technical standards for ATS operation and all other technical standards in this subpart applicable to the particular class of station.

(c) Upon receipt of notification from the Commission, the station can commence full ATS operation under the following special conditions:

(1) The operating log entries specified in § 73.583 (a) (3) need not be made.

(2) [Reserved]

(3) The station may employ at least one radiotelephone first-class operator in accordance with the provisions of § 73.565(c) in lieu of the requirements of § 73.565(d).

(4) In lieu of the schedule of transmitting system equipment inspections specified in § 73.565(h), the inspections shall be made once each calendar month with intervals between successive required inspections not to be less than 20 days.

(5) Continuous operation of the station modulation monitor is not required.

(d) A station utilizing ATS must comply with the provisions of Subpart G of this part at all times.

(e) The transmitting apparatus must be manually activated at the beginning of each broadcast day.

【§ 73.540(c) (2) removed and marked "Reserved" *eff.* 4-30-80; III(80)-1】

## § 73.542 Automatic transmission system facilities.

(a) The licensee of a noncommercial educational FM broadcast station may design, construct, install, and test the necessary equipment for ATS operation or obtain, install and test such equipment if it is compatible with the transmitting equipment with which it is to be used. The licensee may, without further authority, make the necessary modifications in the station transmitting equipment to accommodate ATS monitoring and control devices provided that the transmitting system will comply with all applicable technical specifications included in the regulations of this subpart.

(b) The transmitting apparatus of a noncommercial educational FM station utilizing an automatic transmission system shall be equipped according to the following:

(1) The control system must have devices to monitor and control the output power of the transmitter either by the direct or indirect method as described in § 73.567(a) and (b) (1) (1).

(2) The control system must have devices to automatically adjust transmitter output to the authorized power for each mode of operation within the range specified in § 73.1560(b). If the automatic control device is unable to adjust the output power to a level below 105% of the authorized power after 3 minutes or upon a total of 3 samplings, the emissions of the station will terminate.

(3) The transmitting system must have a device that will detect and adjust the peak level of modulation. If the modulation exceeds more than 10 bursts of 100% modulation within a one minute period as measured at the output terminals of the transmitter, the program audio input signal to the transmitter modulators shall be automatically adjusted downward until these limits are not exceeded. For the purposes of this requirement, a sequence of repetitive instances of modulation exceeding the prescribed limits occurring within a single 5 millisecond interval will be considered to be one burst. The station shall comply with the provisions of § 73.1570 with respect to the minimum modulation levels.

(c) If the station engages in SCA operations, the transmission system shall be equipped with an automatic limiting device to prevent excessive modulation deviation of the SCA subcarrier.

(d) [Reserved].

(e) The ATS control equipment shall be designed to terminate the station transmissions in accordance with § 73.544.

(f) The ATS control equipment shall be designed to provide an alarm signal at an authorized monitoring and alarm point in accordance with § 73.546.

(g) If the station is authorized to use an alternate main or auxiliary transmitter, the ATS control equipment may incorporate circuits to automatically activate such transmitters if they are fully equipped for ATS operation, although such transmitter switching features are not required.

(h) The sampling of modulation levels must be on a continuous basis. All other required sampling of transmitting system functions shall be made at intervals not exceeding one minute.

(i) The ATS equipment shall have facilities to permit testing of the automatic control and alarm devices. The testing may be accomplished without interrupting the station transmission, provided that the test facilities are designed so that they cannot inadvertently or purposefully be used to override the automatic operation of the transmission system.

(j) A noncommercial educational FM station may, without specific authority from the FCC, use a subcarrier frequency for automatic transmission system telemetry in accordance with the technical provisions of § 73.319, and upon installation of a modulation monitor type approved by the FCC for monitoring FM subcarrier transmissions. The subcarrier logging requirements specified in § 73.955 (f) are not applicable to ATS operation.

#### § 73.544 Fail-safe transmitter control for automatic transmission systems.

(a) The ATS control system for a noncommercial educational FM broadcast station must incorporate circuits that will terminate the radiations of the station in the event of any of the following conditions within the time interval specified:

(1) Failure of the automatic power adjustment circuits if the automatic power adjustment controls do not correct an over power condition (antenna input power exceeding 105% of the authorized power) for a three minute period.

(2) Failure of the automatic modulation adjustment circuits to prevent excessive levels from continuing uncorrected for a period exceeding three consecutive minutes.

(3) [Reserved].

(4) Failure of the circuit to the ATS monitoring and alarm point for a period exceeding 3 minutes which prevents the transmitter from being turned off from that point.

(5) Failure in any of the required alarm system functions as required by § 73.546 exceeding 3 consecutive minutes.

(6) Any loss of the required ATS sampling functions for a period exceeding 3 minutes.

(b) If the transmission of the station terminates due to any of the conditions listed in paragraph (a) of this section, operation of the station may resume under manual control of the transmitter, either with an operator holding the proper class of license or permit on duty at the transmitter site or at an authorized remote control point, provided that any out of tolerance condition which may have caused the termination of transmission is corrected upon resumption of manual control of the transmitter.

(c) If termination of the station transmission was caused by any failure of the ATS control or alarm functions, ATS operation of the station shall not be resumed until all necessary repairs or adjustments have been completed and a notation made in the station's maintenance log showing the nature or cause of the ATS malfunction and a certification entered into the log by the station's radiotelephone first or second-class operator that all required ATS functions are fully restored.

#### § 73.546 Automatic transmission system monitoring and alarm points.

(a) Each noncommercial educational FM broadcast station operating an automatic transmission system shall be provided with one or more ATS monitoring and alarm points. A station employee holding at least a restricted radiotelephone operator permit shall be on duty at one such point at all times when the station is in operation. The ATS monitoring and alarm point location may be at the transmitter site, the main studio, an authorized remote control point, or at another authorized location. If the licensee wishes to establish an ATS monitoring and alarm point other than at the station transmitter, main studio, or an authorized remote control point, an informal request is to be submitted to the Commission in Washington, D.C. with a description of the location of the point and stating the basis for its selection. All ATS monitoring and alarm points shall be under the control of, or available to, the licensee at all times. Provisions shall be made so that unauthorized persons can not activate the transmitting system from such points.

(b) The following ATS controls or alarm functions shall be installed at each ATS monitoring and control point to be utilized.

(1) A means to turn the transmitting apparatus on and off at all times.

(2) An off air monitoring receiver for observing the station's transmitted program signal and SCA program signal if SCA is utilized.

(3) An aural alarm signal as specified in paragraph (c) of this section.

(c) An aural alarm at the ATC control and monitoring point shall activate in event of any of the following conditions:



(1) The transmissions of the station are interrupted for a period exceeding three minutes.

(2) The transmitter output power falls below 90% of the authorized value to be used if not automatically corrected within 3 minutes.

(3) An alarm that would indicate any failure of the tower lighting equipment unless arrangements are made for visual observations of the condition of the tower lighting as required in § 17.47 (a).

(d) In addition to the aural alarms specified in paragraph (c), the licensee may install visual alarms or signals, and alarm circuits indicating other conditions at the transmitter site provided that there can be recognition between the required alarm signals and those not required.

(e) Whenever a required alarm condition occurs, the alarm signal shall remain continuously activated until the condition causing the alarm is corrected or manual control of the transmitting system is assumed, provided that if a visual alarm is also provided, the aural alarm may be turned off if the visual alarm remains activated. A notation shall be made in the station's operating log of the time and duration of any ATS alarm conditions.

(f) The station employee on duty at the ATS monitoring and alarm point is not restricted to a specific duty position provided that such person can monitor the off-air program signal and alarm signal employee is the only person in attendance of the station, that person must also be able to observe and respond to an EBS alert as required by Subpart G of this part.

(g) The station employees on duty at ATS monitoring and alarm points shall be fully instructed in procedures to take in event of a malfunction of the transmission system and receipt of an EBS alert.

(h) Station and operator licenses shall be posted at each ATS monitoring and alarm point according to the provisions of § 73.1230.

#### § 73.550 Acceptability of broadcast transmitters for licensing.

See § 73.1660.

#### § 73.552 Frequency measurements.

See § 73.1540.

#### § 73.553 Modulation monitors.

(a) Each noncommercial educational FM station licensed for transmitter output power above 10 watts shall have installed either at the transmitter site, the extension meter location, or at the remote control point from which the transmitter is controlled, a properly operating modulation monitor of a type approved by the Commission. Except for stations operating with an automatic transmission system (ATS) the monitor shall be in continuous operation with the total modulation level meter indications available to the operator on duty in charge of the transmitter. The following also apply to noncommercial educational FM stations:

(1) If the station is engaged in stereophonic operations, the modulation monitor shall be of a type approved by the Commission for monitoring stereophonic transmissions.

(2) If the station is using subcarriers for SCA operations or for remote control or automatic transmission system telemetry, the licensee must have a modulation monitor of a type approved by the FCC for monitoring SCA subcarriers transmissions.

(b) In the event that the modulation monitor becomes defective, the station may be operated without the monitor pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: *Provided, That:*

(1) Appropriate entries shall be made in the maintenance log of the station showing the date and time the monitor was removed and restored to service.

(2) During the period when the station is operated without the modulation monitor, the licensee shall provide other suitable means for insuring that the modulation is maintained within the tolerance prescribed in § 73.1570.

(c) If conditions beyond the control of the licensee prevent the restoration of the monitor to service within the above allowed period, informal request may be filed in accordance with § 73.3549 with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

(d) The licensee of each non-commercial educational FM broadcast station licensed for transmitter power output of 10 watts or less shall provide a percentage modulation indicator or a calibrated program level meter from which a satisfactory indication of the percentage of modulation of the transmitter can be determined.

#### § 73.554 Equipment performance measurements.

(a) The licensee of each noncommercial educational FM station with transmitter output power above 10 watts must make equipment measurements of each main transmitter when initially installed and thereafter at least once each calendar year. One set of measurements must be made during the 4-month period immediately preceding the filing date of the application for renewal of the station license. The dates of completion of successive sets of measurements must be no more than 14 months apart. (Equipment performance measurements for auxiliary transmitters are not required.) Equipment performance measurements must be made with equipment adjusted for normal program operation and shall include all circuits between the main studio microphone terminals or amplifier input and the antenna circuit, including equalizer or corrective circuits normally used, but without compression. The measurement program must yield the following information:

(1) Audio frequency response from 50 to 15,000 hertz (Hz) for approximately 25, 50, and 100 percent modulation. Measurements shall be made on at least

the following audio frequencies: 50, 100, 400, 1000, 5000, 10,000, and 15,000 Hz. The frequency response measurements should normally be made without deemphasis; however, standard 75 microsecond deemphasis may be employed in the measuring equipment or system provided the accuracy of the deemphasis circuit is sufficient to insure that the measured response is within the prescribed limits.

(2) Audio frequency harmonic distortion for 25, 50, and 100 percent modulation for the fundamental frequencies of 50, 100, 400, 1000, and 5000 Hz. Audio frequency harmonics for 100 percent modulation for fundamental frequencies of 10,000 and 15,000 Hz. Measurements shall normally include harmonics to 30,000 Hz. The distortion measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system.

(3) Output noise level (frequency modulation) in the band of 50 to 15,000 Hz in dB below the audio frequency level representing a frequency swing of 75 kHz. The noise measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system.

(4) Output noise level (amplitude modulation) in the band of 50 to 15,000 Hz in dB below the level representing 100 percent amplitude modulation. The noise measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system.

(b) The data required by paragraph (c) of this Section, together with a description of instruments and procedure signed by the engineer making the measurements, shall be kept on file at the transmitter and retained for a period of 2 years, and shall be made available during that time upon request to any duly authorized representative of the Federal Communications Commission.

#### § 73.555 Auxiliary transmitter.

See § 73.1670.

#### § 73.556 Alternate main transmitters.

See § 73.1665.

#### § 73.557 Modification of transmission systems.

Licensees of noncommercial educational FM stations must observe the following procedures for making changes in authorized station transmitting systems.

(a) No changes may be made:

(1) That would result in emission of signals outside of the authorized channel exceeding that which is permitted under § 73.317.

(2) That would result in the external performance characteristics being in disagreement with those prescribed in §§ 73.317 and 73.322.

(b) The following modifications may be made only upon specific authority of the FCC. Application to make the changes must be filed on FCC Form 340.

(1) Installation of a main transmitter which is not included on the FCC's "radio equipment list" as type accepted for broadcast use.

(2) Modification of an existing transmitter which would affect its power rating or change any of the performance characteristics which are required for type acceptance.

(3) Change in the location or the overall height of the antenna supporting structure.

(4) Change in the height above ground of the antenna center of radiation exceeding  $\pm 2$  meters from that shown on the station authorization.

(5) Change in the effective radiated power of the station in the horizontal plane or in the directional radiation characteristics of the antenna.

(6) Change in an antenna system which is mounted on an AM station antenna or which could possibly affect the operation of any AM directional antenna system.

(c) The following modifications may be made and operation commenced without prior authorization from the FCC. Provided, the modifications would not possibly affect the operation of any co-related or nearby AM station. Equipment performance measurements must be made and an application for license modification filed on FCC Form 341 within 10 days following completion of the changes.

(1) Replacement of a nondirectional antenna with one of the same or different type or number of bays. *Provided*, That the height above ground of the center of radiation is within  $\pm 2$  meters of that specified in the station authorization, and there is no change in the horizontal effective radiated power.

(2) Installation of a transmission line with one of a different type or length which requires change in the transmitter output power to maintain the licensed effective radiated power.

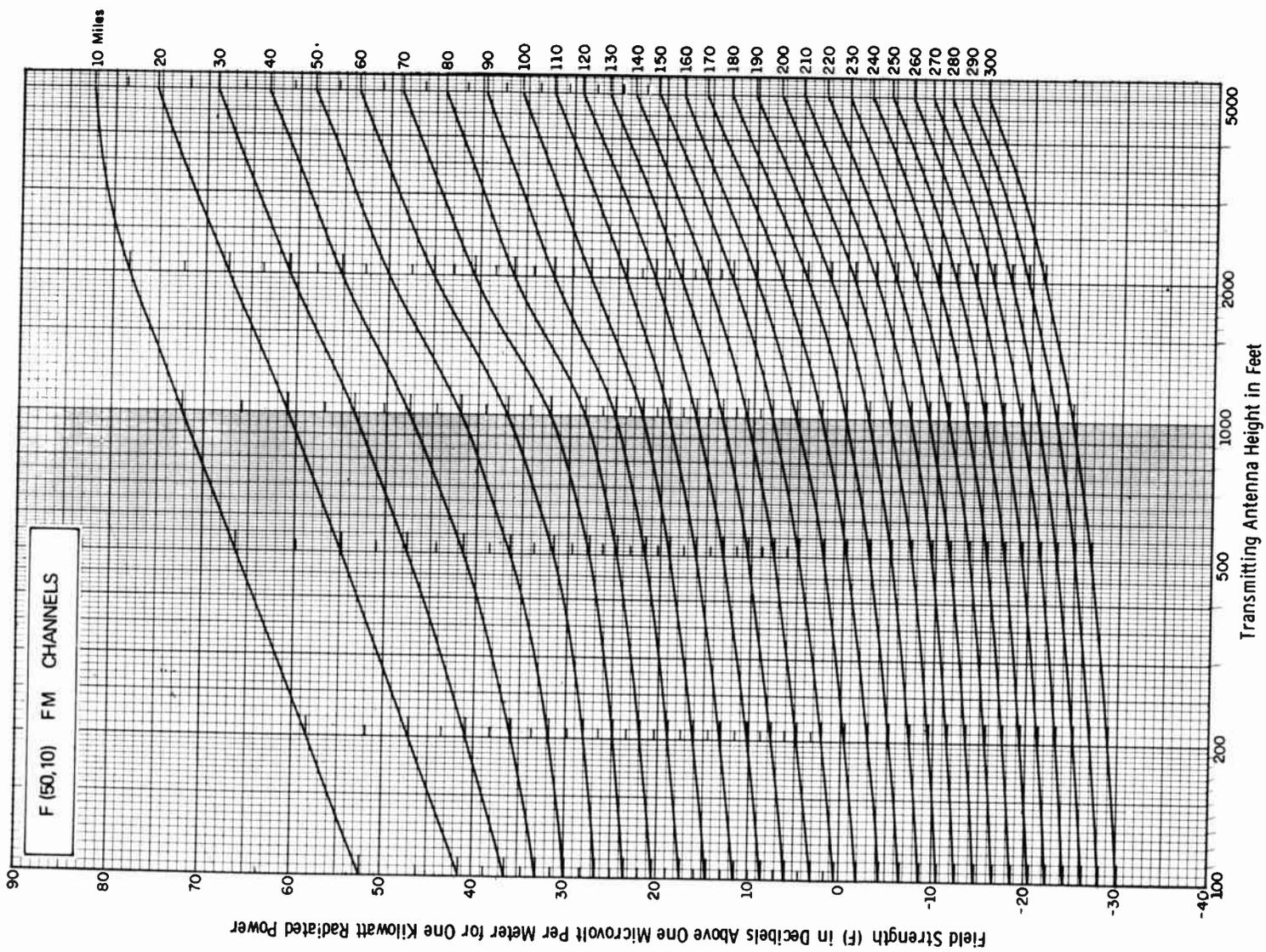
(3) Installation of harmonic filters or diplexers of a different type which require a change in the transmitter output power to maintain the licensed effective radiated power.

(d) The following changes in the transmission system equipment may be made without prior authorization from or notification to the FCC. Equipment performance measurements must be made within 10 days after completing the modification.

(1) Installation of a new transmitter which is included on the FCC's "Radio Equipment List" as type accepted for use. (See § 73.1665.)

(2) Replacement of the carrier frequency generator of the transmitter with one of a different type that has been demonstrated to the FCC to be compatible with the transmitter in use.

(3) Replacement of the FM exciter unit of the transmitter with one that has been acceptable for FM station use through the FCC's type acceptance procedures and that has been demonstrated to the FCC to be compatible with the transmitter in use.

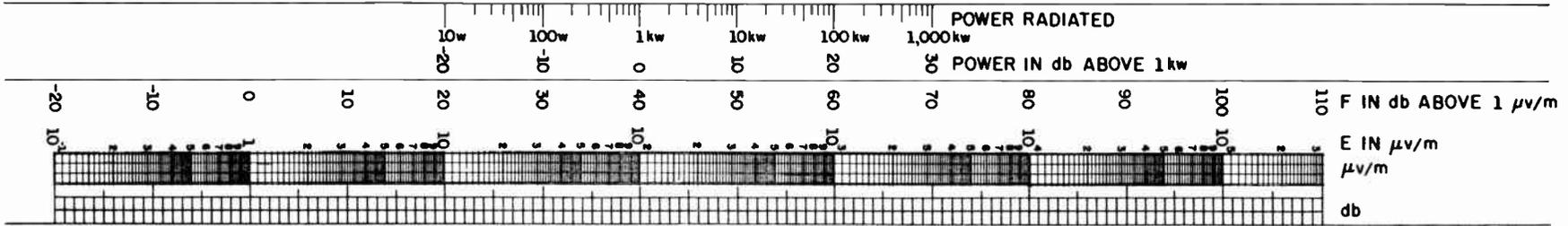


F M CHANNELS  
 ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
 OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 10 PERCENT  
 OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 30 FEET

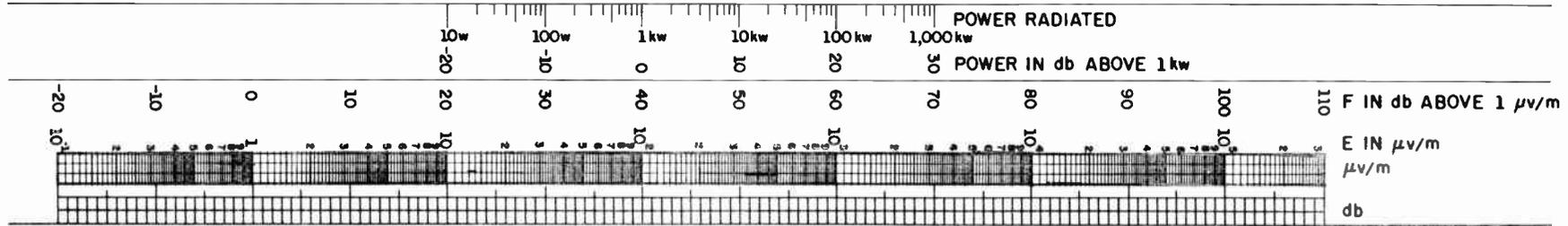


### Sliding Scale for use with Figures 1 and 1a

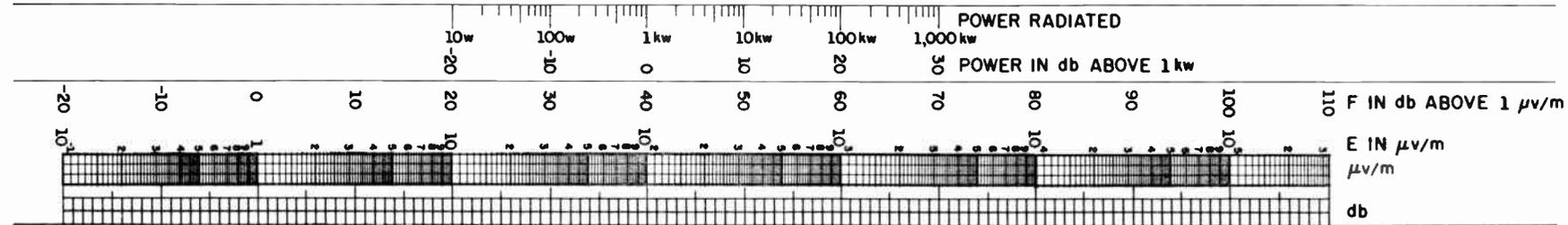
Sliding scale for use with Figure 1 & 1a.



Sliding scale for use with Figure 1 & 1a.



Sliding scale for use with Figure 1 & 1a.





(4) Replacement of the stereophonic generator of the transmitter with one that has been demonstrated to the FCC to be compatible with the transmitter in use.

#### TECHNICAL OPERATION AND OPERATORS

##### § 73.558 Indicating instruments.

(a) Each noncommercial educational FM broadcast station licensed for a transmitted power above 10 watts shall be equipped with indicating instruments which conform with the specifications described in § 73.1215 for determining the power by the indirect method; for indicating the relative amplitude of the transmission line radio frequency current, voltage, or power; and with such other instruments as are necessary for the proper adjustment, operation, and maintenance of the transmitting system.

(b) [Reserved]

(c) [Reserved]

(d) The function of each instrument shall be clearly and permanently shown in the instrument itself or on the panel immediately adjacent thereto.

(e) In the event that any of these indicating instruments becomes defective when no substitute which conforms with the required specifications is available, the station may be operated without the defective instrument pending its repair or replacement for a period not in excess of 60 days with further authority of the Commission: *Provided, That:*

(1) Appropriate entries shall be made in the maintenance log of the station showing the date and time the meter was removed from and restored to service.

(2) [Reserved]

(3) If the defective instrument is the transmission line meter of a station which determines the output power by the direct method, the operating power shall be determined by the indirect method in accordance with § 73.267(c) during the entire time the station is operated without the transmission line meter.

(f) If conditions beyond the control of the licensee prevent the restoration of the meter to service within the above allowed period, informal request in accordance with § 73.3549 of this chapter may be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

##### § 73.561 Operating schedule; time sharing.

(a) All noncommercial educational FM stations will be licensed for unlimited time operation except those stations operating under a time sharing arrangement. Beginning January 1, 1979, all noncommercial educational FM stations are required to operate at least 36 hours per week, consisting of at least 5 hours of operation per day on at least 6 days of the week; however, stations licensed to educational institutions are not required to operate on Saturday or Sunday or to observe

the minimum operating requirements during those days designated on the official school calendar as vacation or recess periods.

(b) Effective January 1, 1980, all stations, including those meeting the requirements of paragraph (a) above, but which do not operate 12 hours per day each day of the year, will be required to share use of the frequency upon the grant of an appropriate application proposing such share time arrangement. Such applications shall set forth the intent to share time and shall be filed in the same manner as are applications for new stations. They may be filed at any time, but in cases where the parties are unable to agree on time sharing, action on the application will be taken only in connection with the renewal of application for the existing station. In order to be considered for this purpose, such an application to share time must be filed no later than the deadline for filing applications in conflict with the renewal application of the existing licensee.

(1) The licensee and the prospective licensee(s) shall endeavor to reach an agreement for a definite schedule of periods of time to be used by each. Such agreement shall be in writing and shall set forth which licensee is to operate on each of the hours of the day throughout the year. Such agreement shall not include simultaneous operation of the stations. Each licensee shall file the same in triplicate original with each application to the Commission for initial construction permit or renewal of license. Such written agreements shall become part of the terms of each station's license.

(2) The Commission desires to facilitate the reaching of agreements on time sharing. However, if the licensees of stations authorized to share time are unable to agree on a division of time, the Commission shall be so notified by statement to that effect filed with the application proposing time sharing. Thereafter the Commission will designate the application for hearing on any qualification issues arising regarding the renewal or new applicants. If no such issues pertain, the Commission will set the matter for expedited hearing limited solely to the issue of the sharing of time. In the event the stations have been operating under a time sharing agreement but cannot agree on its continuation, a hearing will be held, and pending such hearing, the operating schedule previously adhered to shall remain in full force and effect.

(c) A departure from the regular schedule set forth in a time-sharing agreement will be permitted only in cases where an agreement to that effect is reduced to writing, is signed by the licensees of the stations affected thereby and filed in triplicate by each licensee with the Commission prior to the time of the proposed change. If time is of the essence, the actual departure in operating schedule may precede the actual filing of written agreement, provided appropriate notice is sent to the Commission in Washington, D.C.

(d) In the event that causes beyond the control of a permittee or licensee make it impossible to adhere to the operating schedule in paragraphs (a) and (b) of this Section or to continue operating, the station may limit or discontinue operation for a period of not more than 30 days without further authority from the Commission, *Provided*, That notification is sent to the Commission in Washington, D.C. no later than the 10th day of limited or discontinued operation. During such period, the permittee or licensee shall continue to adhere to the requirements of the station license pertaining to the lighting of antenna structures. In the event normal operation is restored prior to the expiration of the 30-day period, the permittee or licensee will so notify the Commission in Washington, D.C. of this date. If the causes beyond the control of the permittee or licensee make it impossible to comply within the allowed period, informal written request shall be made to the Commission in Washington, D.C. no later than the 30th day for such additional time as may be deemed necessary.

NOTE : See §§ 73.1705, 73.1717 and 73.1740.

**§ 73.562 Experimental operation.**

See § 73.1510 and § 73.1520.

**§ 73.563 Station inspection.**

See § 73.1225.

**§ 73.564 Station and operator licenses; posting of.**

See § 73.1230.

**§ 73.565 Operator requirements.**

(a) One or more operators holding a radio operator license or permit of a grade specified in this section shall be in actual charge of the transmitting system, and shall be on duty at the transmitter location, or at an authorized remote control point, or the position at which extension meters, as authorized pursuant to § 73.1550 of this Subpart, are located. The transmitter and required monitors and metering equipment, or the required extension meters and monitoring equipment or the controls and required monitoring and metering equipment in an authorized remote control operation, shall be readily accessible to the licensed operator and located sufficiently close to the normal operating location that deviations from normal indications of required instruments can be observed from that location.

(b) With the exceptions set forth in paragraph (f) of this section, adjustments of the transmitting system, and inspection, maintenance, and required equipment performance measurements shall be performed only by an operator holding the class of license specified below, or during periods of operation when the transmitter is in the charge of an operator of the specified class, by or under the direction of a broadcast consultant regularly engaged in the practice of broadcast station engineering.

(1) A first-class radiotelephone operator license if the station is authorized to operate with transmitter power output of more than 1 kW.

(2) A first-class or second-class radiotelephone operator license if the station is authorized to operate with transmitter power output of more than 10 watts but not in excess of 1 kW.

(3) A first-class or second-class radiotelephone or radiotelegraph operator license if the station is authorized to operate with transmitter power output of not more than 10 watts.

(c) Noncommercial educational FM stations may employ persons holding any class of commercial radio operator license or permit for the routine duty operation of the transmission system as defined in paragraph (f) of this section. In addition, each station must employ at least one person holding the class of license specified for the station's power category specified in paragraph (b) of this section, either in full time or whatever less than full-time the licensee determines is needed to keep the station's technical operation in compliance with the FCC rules and terms of the station authorization. As an alternative to the employment of a first-class or second-class operator, the licensee may contract in writing for the services of one or more operators of the applicable class who will be readily available on a part-time basis. Signed contracts must be kept in the station file and made available for inspection upon request by authorized representatives of the FCC.

(d) The licensee of a noncommercial educational FM station authorized to operate with a total transmitter output power of more than 25 kW and employing lesser grade duty operators in accordance with paragraph (c) of this section must designate one first-class radiotelephone operator as the chief operator who, together with the licensee, is responsible for the technical operation of the station. The licensee may also designate another first-class radiotelephone operator as assistant chief operator who will assume all responsibilities during absences of the designated chief operator.

(1) A copy of the designation must be posted with the license of the designated chief operator.

(2) [Reserved]

(3) The station licensee shall vest such authority in, and afford such facilities to the chief operator as may be necessary to insure that the chief operator's primary responsibility for the proper technical operation of the station may be discharged efficiently.

(4) At such time as the regularly designated chief operator is unavailable or unable to act as chief operator (e.g., vacations, sickness), and an assistant chief operator has not been designated, or, if designated, for any reason is unable to assume the duties of the chief operator, the licensee must designate another first-class radiotelephone operator as acting chief on a temporary basis.

(5) The designated chief operator may serve as a routine duty transmitter operator at any station only to the extent that it does not interfere with the efficient discharge of his responsibilities as listed below.

(i) The inspection and maintenance of the transmitting system, including the antenna system and required monitoring equipment.

(ii) The accuracy and completeness of entries in the maintenance log.

(iii) The supervision and instruction of all other station operators in the performance of their technical duties.

(iv) A review of completed operating logs to determine whether technical operation of the station has been in accordance with the rules and terms of the station authorization. After review, the chief operator shall sign the log and indicate the date and time of such review. If the review of the operating logs indicates technical operation of the station is in violation of the rules or terms of the station authorization, he shall promptly initiate corrective action. The review of each day's operating logs shall be made within 24 hours, except that, if the chief operator is not on duty during a given 24 hour period, the logs must be reviewed within 2 hours after his next appearance for duty. In any case, the time before review cannot exceed 72 hours.

(e) [Reserved]

(f) Subject to the conditions in paragraphs (c) and (d) of this Section, operators not holding first class radiotelephone operator licenses second class licenses for stations operating with 1 kW or less transmitter power) may make adjustments only of external controls, as follows:

(1) Those necessary to turn the transmitter on and off;

(2) Those necessary to compensate for voltage fluctuations in the primary power supply;

(3) Those necessary to maintain modulation levels of the transmitter within prescribed limits.

(g) It is the responsibility of the station licensee to insure that each operator is fully instructed in the performance of all the above adjustments, as well as in other required duties, such as reading meters and making log entries. Printed step-by-step instruction for those adjustments which the lesser grade operator is permitted to make, and a tabulation or chart of upper and lower limiting values of parameters required to be observed and logged, shall be posted at the operating position. The emissions of the station shall be terminated immediately whenever the transmitting system is observed operating beyond the posted parameters, or in any other manner inconsistent with the rules or the station authorization, and the above adjustments are ineffective in correcting the condition of improper operation, and an operator of the class specified in paragraph (b) of this section is not present.

(h) The operator on duty at the transmitter site or remote control point, may, at the discretion of the licensee and the chief operator, if any, be employed for other duties or for the operation of another radio station or stations in accordance with the class of operator's license which he holds and the rules and regulations governing such other stations: *Provided, however*, That such other duties shall not interfere with the proper operation of the transmitting system and keeping of required logs.

(i) At all noncommercial educational FM broadcast stations, a complete inspection of the transmitting system and required monitoring equipment in use shall be made by an operator holding a first class radiotelephone license at least once each calendar week. The interval between successive required inspections shall not be less than 5 days. This inspection shall include such tests, adjustments, and repairs as may be necessary to insure operation in conformance with the provisions of this subpart and the current station authorization: *Provided*, That if the transmitter power output is in excess of 10 watts, but not greater than 1 kilowatt, an operator holding a second class radiotelephone license may perform the required inspection: *Provided, further*, That if the transmitter power output is 10 watts or less, no such weekly inspection need be made, although this shall in no way relieve such stations from the duty to operate in conformance with the provisions of this subpart and the current station authorization.

(j) Procedures for licensees employing full-time first-class radiotelephone duty operators to temporarily employ persons holding lesser grade licenses, or to employ a temporary pro-tem chief operator when the designated chief is incapacitated or unavailable are given in § 73.3547.

【§ 73.565(c), (d), (d)(1), and (d)(4) revised; (d)(2) deleted and reserved; (i) added; Eff. 4-30-80; III (80)-1】

#### § 73.566 Operating power.

(a) *Determination*. See § 73.267.

(b) *Maintenanc*. See § 73.1560.

(c) *Reduced power*. See § 73.1560.

#### § 73.567 Determining operating power.

The procedures for determining operating power described in § 73.267 are applicable to noncommercial educational FM stations.

#### § 73.568 Modulation.

See § 73.1570.

#### § 73.569 Frequency tolerance.

See § 73.1545.

**§ 73.570 Antenna structure, marking and lighting.**

See § 73.1213.

**§ 73.571 Discontinuance of operation.**

See § 73.1750.

**§ 73.573 Emergency antennas.**

See § 73.1680.

**[§ 73.573 added eff. 4-30-80; III(80)-1]****§ 73.574 Remote control authorizations.**

(a) The licensee of a noncommercial educational FM station may operate by remote control without authorization from the FCC. However, written notice giving the address and description of the remote control point being used must be sent to the FCC in Washington, D.C. within three days of commencing remote control operation. When a remote control point is at an address or location other than that of either the authorized transmitter or studio facilities, the licensee must also send a notice to the Engineer in Charge of the radio district in which the station is located. This additional notice is to include the full address, location, and telephone number of the remote control point.

(b) A noncommercial educational FM station may, without specific authority from the FCC, use a subcarrier frequency for remote control or automatic transmission system telemetry, in accordance with the technical provisions of § 73.319, and upon installation of a modulation monitor type approved for monitoring FM subcarrier transmissions.

**§ 73.575 Remote control operation.**

(a) Operation by remote control shall be subject to the following conditions:

(1) The equipment at the operating and transmitting positions shall be so installed and protected that it is not accessible to or capable of operation by persons other than those duly authorized by the licensee.

(2) The control circuits from the operating position to the transmitter shall provide positive on and off control and shall be such that open circuits, short circuits, grounds or other line faults will not actuate the transmitter and any fault causing loss of such control will automatically place the transmitter in an inoperative position.

(3) A malfunction of any part of the remote control system resulting in improper control shall be cause for the immediate cessation of operation by remote control. A malfunction of any part of the remote control system, resulting in inaccurate meter readings, shall be cause for terminating operation by remote control no longer than 1 hour after the malfunction is detected.

(4) Control and monitoring equipment shall be installed so as to allow the licensed operator at the remote control points to perform all the functions in a manner required by the Commission's rules. Stations licensed to operate with a transmitter output power of 10 watts or less are not required to have remote transmitter

meters or controls to adjust the output power from the remote control point, but must have a monitoring device to indicate when the transmitter is radiating power and a percentage modulation indicator or calibrated program level meter.

(5) Calibration of required indicating instruments at each remote control point shall be made against their corresponding instruments at the transmitter site as often as necessary to insure their accuracy, but in no event less than once a week, and:

(i) The results of such calibration shall be entered in the station's maintenance log;

(ii) In no event shall a remote control meter be calibrated against another remote control meter;

(iii) Each remote control meter shall be accurate within 2 percent of the value read on its corresponding meter at the transmitter site.

(6) All remote control meters shall conform with specifications prescribed for the regular transmitter, antenna, and monitoring meters.

(7) Meters with arbitrary scale divisions may be used provided that calibration charts or curves are provided at the transmitter remote control point showing the relationship between the arbitrary scales and the reading of the main meters.

(8) The total percentage of modulation indications of the modulation monitor shall be continuously available at the remote control point(s), except when other transmission system meter readings are being taken. The modulation level indications shall be continuously monitored between meter readings unless the transmission system is equipped with an automatic device to limit the modulation so as not to exceed the peak levels specified in § 73.1570.

**§ 73.576 Extension meters.**

See § 73.1550.

**§ 73.578 Special field test authorization.**

See § 73.1515.

**OTHER OPERATING REQUIREMENTS****§ 73.581 General requirements relating to logs.**

See § 73.1800.

**§ 73.582 Program logs.**

See § 73.1810.

**§ 73.583 Operating logs.**

See § 73.1820.

**§ 73.584 Maintenance logs.**

See § 73.1830.

**§ 73.585 Retention of logs.**

See § 73.1840.

**§ 73.586 Availability of logs and records.**

See §§ 73.1225 and 73.1850.

**§ 73.587 Station identification.**

See § 73.1201.

**§ 73.590 Broadcasts by candidates for public office.**

See § 73.1940.

**§ 73.591 Personal attacks.**

See §§ 73.1910 & 73.1920.

**§ 73.592 Lotteries.**

See § 73.1211.

**§ 73.593 Subsidiary Communications Authorizations.**

(a) A noncommercial educational FM broadcast licensee or permittee may apply for a Subsidiary Communications Authorization (SCA) to provide limited types of subsidiary service on a multiplex basis. Any use of SCA by such licensee or permittee must be consistent with the limitation on the purpose and operation of noncommercial educational FM stations contained in § 73.503: *Provided*, That uses permitted under this paragraph will not be considered "commercial" as long as no consideration for such use (other than the furnishing of the material transmitted and/or payment of line charges) is received by the licensee, directly or indirectly, and no commercial announcements or references are contained in the material transmitted under the SCA. Permissible uses must fall within one or both of the following categories:

(1) Transmission of programs which are noncommercial and in furtherance of an educational purpose, and which are of a broadcast nature but of interest primarily to limited segments of the station's audience. Typical services may include: programs for presentation in classrooms; programs designed for specific professional groups, such as doctors, lawyers, and engineers; programs intended to serve the special needs and interests of the aged, the handicapped, particular social or ethnic groups, and for those in a specific trade or sharing a common interest or hobby; programs for individualized remedial or advanced learning needs; and any use permitted for a commercial FM station under § 73.293(a)(1), subject to the prohibition against commercial operation and the limitation as to purpose contained in this section and in § 73.503, such limitation especially including those non-instructional services customarily provided by commercial firms. Users permitted under this subparagraph will not be considered "commercial," when charges are made for the service rendered, under the circumstances and subject to the conditions set forth hereunder:

(i) A per-course, per-session, per-seminar, per-pupil or other appropriate fee is charged for formal or informal instructional material, presented by, with or for a bona fide educational institution. Payment of the fee shall be made to the noncommercial educational FM station or to the educational institution; such fee may include, in addition to the station expenses detailed in subdivision (iii), of this subparagraph, the usual tuition charged for similar material presented by other means.

(ii) A charge is made for a program or series of programs, informational or generally instructional in

nature, intended to meet the special needs and interests of one or more of the groups the station is authorized to serve under its SCA. Payment of the charge shall be made to the noncommercial educational FM station.

(iii) Payments retained by the station shall total no more than the approximate cost of conducting the SCA operation (including purchase or lease of equipment, course material, personnel services, etc.) and the general overhead and operational costs attributable to such operations.

(iv) A noncommercial educational FM station offering program material subject to fee or other charge shall clearly indicate in any broadcast or printed solicitation to prospective enrollees whether the material falls into category subdivision (i) or (ii), of this subparagraph, so that informational and general educational materials are not represented as formal instructional or institutional credit programs.

(2) Transmission of signals which are directly related to the operation of noncommercial educational FM stations; for example, relaying of broadcast material to other stations, remote cueing and order circuits, and similar uses. (Use of multiplex subcarriers for transmission of control and data telemetry for remote control automatic transmission system (ATS) operation does not require an SCA.)

(b) An application for an SCA shall be submitted on FCC Form 318. An applicant for SCA shall specify the particular nature and purpose of the proposed use. If visual transmission of program material is contemplated (see § 73.310(c)), the application shall include certain technical information concerning the visual system, on which the Commission shall rely in issuing an SCA. If any significant change is subsequently made in the system, revised information shall be submitted. The technical information to be submitted is as follows:

(1) A full description of the visual transmission system.

(2) A block diagram of the system, as installed at the station, with all components, including filters, identified as to make and type. Response curves of all composite filters shall be furnished.

(3) The results of measurements which demonstrate that the subcarrier, when modulated by the visual signal, meets the requirements of § 73.319(e), and of such observations or measurements as may be necessary to show that signal components of appreciable strength are not produced outside of the band normally occupied by the FM station's emissions (see § 73.317(a)(12) and (13)). A description of the apparatus and techniques employed in these measurements and observations shall be furnished.

(4) Experimental operation of a noncommercial educational FM station to obtain the technical information necessary to support an application for an SCA for visual transmissions may be conducted under the provisions of § 73.1510.

(c) SCA operations may be conducted without re-

striction as to time so long as the main channel is programmed simultaneously.

(d) Prior permission to engage in any new or additional SCA activity other than the transmission of control and data telemetry for remote control ATS operation must be obtained from the FCC by filing an application on FCC Form 318.

#### § 73.594 Nature of the SCA.

(a) The SCA is of a subsidiary or secondary nature and shall not exist apart from the noncommercial educational FM license or permit. No transfer or assignment of it shall be made separate from the FM license or permit, and failure to transfer the SCA with the FM license renders the SCA void. Any assignment or transfer of an SCA shall, if desired, be requested as part of the main station's transfer or assignment application. The licensee or permittee must seek renewal of the SCA (on FCC Form 318) at the same time it applies for its renewal of noncommercial educational FM license; failure to renew the latter automatically terminates the SCA.

(b) The grant or renewal of a noncommercial educational FM license or permit will not be furthered or promoted by the proposed or past operation under an SCA; the licensee must establish that its broadcast operation is in the public interest wholly apart from the SCA activities. (Violation of rules applicable to the SCA operation would, of course, reflect on the licensee's qualifications to hold its broadcast license or permit.)

#### § 73.595 Use of multiplex subcarriers.

(a) Use of multiplex subcarriers by an FM station must conform to the purposes authorized by the FCC under a Subsidiary Communications Authorization (SCA) except for the transmission control and telemetry data for remote control or automatic transmission system operation which may be conducted without an SCA.

(b) Superaudible and subaudible tones and pulses may, when authorized by the Commission, be employed by SCA holders to activate and deactivate subscribers' multiplex receivers. The use of these or any other control techniques to delete main channel material is specifically forbidden.

(c) In all arrangements entered into with outside parties affecting SCA operation, the licensee or permittee must retain control over all material transmitted over the station's facilities, with the right to reject any material which it deems inappropriate or undesirable. Subchannel leasing arrangements shall be reduced to writing, kept at the station, and made available for inspection upon request from the Commission.

(d) The station identification, delayed recording, and donor identification announcements required by §§ 73.1201, 73.1208, and 73.503, and the program log requirements for such announcements in § 73.1810 are not applicable to material transmitted under an SCA.

(e) To the extent that SCA circuits are used for the

transmission of program material, each licensee or permittee shall maintain a daily program log in which a general description of the material transmitted shall be entered once during each broadcast day: *Provided, however,* That in the event of a change in the general description of the material transmitted, an entry shall be made in the SCA program log indicating the time of each such change and a description thereof.

(f) A daily SCA operating log must be maintained for the multiplex subcarrier transmissions, except those for control and data telemetry for remote control or ATS operation. The following log entries are to be made, excluding subcarrier interruptions of 15 minutes or less:

- (1) Time subcarrier generator is turned on.
- (2) Time modulation is applied to subcarrier.
- (3) Time modulation is removed from subcarrier.
- (4) Time subcarrier generator is turned off.

(g) The frequency of each SCA subcarrier shall be measured as often as necessary to ensure that it is kept at all times within 500 Hz of the authorized frequency. In any event, however, SCA subcarrier frequencies shall be measured in accordance with the following schedule:

- (1) For stations authorized to operate with transmitter power in excess of 10 watts, each SCA subcarrier frequency shall be measured at least once each calendar month with not more than 40 days expiring between successive measurements.

【§ 73.595(d) revised eff. 4-30-80; III(80)-1】

#### § 73.596 Broadcast of telephone conversations.

See § 73.1206.

#### § 73.597 Stereophonic broadcasting.

(a) A noncommercial educational FM broadcast station may, without specific authority from the FCC, transmit stereophonic programs upon installation of type accepted stereophonic transmitting equipment and, for stations authorized to operate with a transmitter output power over 10 watts, a type approved stereophonic modulation monitor. Prior to commencement of stereophonic broadcasts, equipment performance measurements must be completed.

(b) Each licensee or permittee engaging in stereophonic broadcasting shall measure the pilot subcarrier frequency as often as necessary to ensure that it is kept at all times within 2 Hz of the authorized frequency. In any event, however, the stereo-pilot subcarrier frequency shall be measured in accordance with the following schedule:

- (1) For stations authorized to operate with transmitter power in excess of 10 watts, the pilot subcarrier frequency shall be measured at least once each calendar month with not more than 40 days expiring between successive measurements.

(2) For stations authorized to operate with transmitter power of 10 watts or less, the pilot subcarrier frequency shall be measured:

(i) When the stereo-pilot subcarrier generator is initially installed;

See § 73.1250.

(ii) At any time the frequency determining elements of the stereo-pilot subcarrier generator are changed;

§ 73.598 **Operation during emergency.**

See § 73.1250.

(iii) At any time the licensee may have reason to believe the stereo-pilot subcarrier frequency is not within the frequency tolerance prescribed by the Commission's rules.

§ 73.599 **Equal employment opportunities.**

See § 73.2080.



**SUBPART D—[RESERVED]**

**SUBPART E—TELEVISION BROADCAST STATIONS**

**GENERAL**

**§ 73.601 Scope of subpart.**

This subpart contains the rules and regulations (including engineering standards) governing television broadcast stations, including noncommercial educational television broadcast stations, in the United States, its Territories and possessions. Television broadcast stations are assigned channels 6 megahertz (MHz) wide, designated as set forth in § 73.603(a).

**§ 73.602 Cross reference to rules in other Parts.**

See § 73.1010.

**§ 73.603 Numerical designation of TV channels.**

**(a)**

Channel No.	Frequency band (MHz)	Channel No.	Frequency band (MHz)
2	54-60	22	518-524
3	60-66	23	524-530
4	66-72	24	530-536
5	76-82	25	536-542
6	82-88	26	542-548
7	174-180	27	548-554
8	180-186	28	554-560
9	186-192	29	560-566
10	192-198	30	566-572
11	198-204	31	572-578
12	204-210	32	578-584
13	210-216	33	584-590
14	470-476	34	590-596
15	476-482	35	596-602
16	482-488	36	602-608
17	488-494	37	608-614
18	494-500	38	614-620
19	500-506	39	620-626
20	506-512	40	626-632
21	512-518	41	632-638

Channel No.	Frequency band (MHz)	Channel No.	Frequency band (MHz)
42	638-644	63	764-770
43	644-650	64	770-776
44	650-656	65	776-782
45	656-662	66	782-788
46	662-668	67	788-794
47	668-674	68	894-900
48	674-680	69	830-806
49	680-686	70	806-812
50	686-692	71	812-818
51	692-698	72	818-824
52	698-704	73	824-830
53	704-710	74	830-836
54	710-716	75	836-842
55	716-722	76	842-848
56	722-728	77	848-854
57	728-734	78	854-860
58	734-740	79	860-866
59	740-746	80	866-872
60	746-752	81	872-878
61	752-758	82	878-884
62	758-764	83	884-890

(b) In Alaska and Hawaii, the frequency band 76-82 MHz and 82-88 MHz are allocated for nonbroadcast use. These frequency bands (Channels 5 and 6) will not be assigned in Alaska or Hawaii for use by television broadcast stations.

(c) Channel 37, 608-614 MHz, is reserved exclusively for the radio astronomy service until the first Administrative Radio Conference after January 1, 1974, which is competent to review this provision.

**CHANNEL UTILIZATION**

**§ 73.606 Table of assignments.**

(a) *General.* The following table of assignments contains the channels assigned to the listed communities in the United States, its Territories, and possessions. Channels designated with an asterisk are assigned for use by noncommercial educational broadcast stations only. A station on a channel identified by a plus or minus mark is required to operate with the carrier frequencies offset 10 kHz above or below, respectively, the normal carrier frequencies.

(b) Table of Assignments	Channel No.
<b>Alabama:</b>	
Andalusia.....	*2-
Anniston.....	40-
Birmingham.....	6-, *10-, 13-, 21-, 42+, *62+, 68+
Decatur-Huntsville.....	54
Demopolis.....	*41
Dothan.....	4, 18, *39+, 60-
Florence.....	15, 26, *36-
Gadsden.....	44+, 60
Huntsville.....	19, *25+, 31+, 48-
Huntsville-Decatur.....	54
Louisville.....	*43+
Mobile.....	5+, 10+, 15+, 21+, *31, *42
Montgomery.....	12, 20, *26+, 32, 45-
Munford.....	*7-, *16-
Opelika.....	66
Selma.....	8, 29-
Tuscaloosa.....	17, 33, *39-
Tuscumbia.....	47-
<b>Alaska:</b>	
Anchorage.....	2-, 4-, *7-, 11, 13-
Bethel.....	*4
Dillingham.....	10
Fairbanks.....	2+, 4+, 7+, *9+, 11+, 13+
Juneau.....	*3, 8, 10
Ketchikan.....	2, 4, *9
Seward.....	3-, 9-
Sitka.....	13
<b>Arizona:</b>	
Ajo.....	*23-
Coolidge.....	*43
Douglas.....	3, *28
Flagstaff.....	2, 13, *16
Globe.....	*14+
Holbrook.....	*18+
Kingman.....	6-, *14-
McNary.....	*22+
Mesa.....	12-
Nogales.....	*16+
Page.....	*17
Parker.....	*17-
Phoenix.....	3+, 5-, *8+, 10-, 15-, 21, 33, *39
Prescott.....	7, *19
Safford.....	*23+
Tucson.....	4-, *6+, 9-, 13-, 18-, *27-, 40
Tucson-Nogales.....	*11
Yuma.....	11-, 13+, *16-
<b>Arkansas:</b>	
Arkadelphia.....	*9+
Batesville.....	*17
El Dorado.....	10-, 18-, *30+
Fayetteville.....	*13-, 29+
Fort Smith.....	5-, 24+, 40-
Harrison.....	*31+
Hot Springs.....	*20, 26
Jonesboro.....	8-, *19+
Little Rock.....	*2-, 4, 7-, 11, 16-, *36
Mountain View.....	*6-
Pine Bluff.....	25-, 38-
Russellville.....	*28+

California:	Channe No.
Alturas.....	13+
Anaheim.....	56-
Bakersfield.....	17, 23-, 29, *39-
Barstow.....	*35+
Bishop.....	*14-
Blythe.....	*22-
Brawley.....	*26
Chico.....	12-, <sup>1</sup> *18, 24+, *30-
Coalinga.....	*27-
Concord.....	42
Corona.....	52
Cotati.....	*22-
El Centro.....	7+, 9+
Eureka.....	3-, 6-, *13-
Fort Bragg.....	<sup>1</sup> *17+
Fresno.....	*18+, 24, 30+, 47, 53
Hanford.....	21
Indio.....	<sup>1</sup> *19+
Los Angeles.....	2, 4, 5, 7, 9, 11, 13, 22, *28, 34, *58-, *68-
Modesto.....	19-, *23+
Oxnard.....	63+
Palm Springs.....	36-, 42
Redding.....	7, <sup>9</sup> , <sup>1</sup> 16
Ridgecrest.....	*25
Riverside.....	46, 62
Sacramento.....	3, *6, 10, 15 <sup>2</sup> , 31-, 40-
Salinas-Monterey.....	8+, 35-, 46-, *56, 67-
San Bernardino.....	18-, *24-, 30
San Diego.....	8, 10, *15, 39, 51, 69
San Francisco.....	2+, 4-, 5+, 7-, *9+, 14+, 20-, 26-, *32+, 38, 44-
San Jose.....	11+, 36, 48-, *54, 65
San Luis Obispo.....	6+, *15+
San Mateo.....	*60
Santa Ana.....	40, *50-
Santa Barbara.....	3-, 14 <sup>1</sup> , *20 <sup>1</sup> , *32
Santa Cruz.....	<sup>1</sup> *16-
Santa Maria.....	12+
Santa Rosa.....	50-, *62
Stockton.....	13+, 58, 64
Susanville.....	*14
Tulare.....	26+
Vallejo-Fairfield.....	66
Ventura.....	16+
Visalia.....	*43
Watsonville.....	*25+
Yreka City.....	*20+
<b>Colorado:</b>	
Alamosa.....	*16

<sup>1</sup> Following the decision in Docket No. 18261, channels so indicated will not be available for television use until further action by the Commission.

<sup>2</sup> Operation on this channel is subject to the conditions, terms, and requirements set out in the Report and Order in Docket No. 19075, RM-1645, adopted January 5, 1972, released January 7, 1972, FCC 72-19.

<sup>3</sup> Channel 15 will not be available for television use until further action by the Commission.

**[Amended in III(80)-1:**

*Eff. 12-4-80:*

*Selma, Ala.*

*Eff. 12-4-80:*

*Little Rock, Ark.*

*Eff. 9-19-80:*

*Riverside, Cal.*

*Eff. 9-22-80:*

*San Diego, Cal.]*

	Channel No.		Channel No.
Colorado—Continued		Florida—Continued	
Boulder.....	*12, 14	St. Petersburg.....	10-, 38, 44+
Colorado Springs.....	11, 13, 21	Sarasota.....	40
Craig.....	*16+	Sebring.....	*48
Denver.....	2, 4-, *6-, 7, 9-, 20, 31, *41	Tallahassee.....	*11-, 27+, 40+
Durango.....	6+, *20-	Tampa.....	*3, 8-, 13-, *16, 28
Fort Collins.....	22-	West Palm Beach.....	5, 12, 29+, *42+, 61
Glenwood Springs.....	3-, *19+	Georgia:	
Grand Junction.....	5-, 8-, *18+	Albany.....	10, 19-, 31-
Gunnison.....	*17-	Ashburn.....	*23+
La Junta.....	*22+	Athens.....	*8-, 34
Lamar.....	12-, *14-	Atlanta.....	2, 5-, 11+, 17-, *30, 36, 46-, *57+, 69
Leadville.....	*15-	Augusta.....	6+, 12-, 26, 54-
Montrose.....	10+, *22	Brunswick.....	21+
Pueblo.....	5, *8, 26+, 32-	Carnesville.....	*52
Salida.....	*23+	Carrollton.....	*49-
Sterling.....	3, *18+	Cedartown.....	*65-
Trinidad.....	*24	Chatsworth.....	*18-
Connecticut:		Cochran.....	*15
Bridgeport.....	43-, *49-	Columbus.....	3, 9+, *28, 38+, *48, 54+
Hartford.....	3+, 18-, *24, 61+	Dawson.....	*25
New Britain.....	30+	Draketown.....	*27-
New Haven.....	8, 59+, 65	Elberton.....	*60+
New London.....	26+	Flintstone.....	*51-
Norwich.....	*53	Lafayette.....	*35
Waterbury.....	20	Macon.....	13+, 24+, 41+, *47+
Delaware:		Pelham.....	*14-
Dover.....	*34	Rome.....	14+
Seaford.....	38, *64-	Royston.....	*22+
Wilmington.....	*12, 61	Savannah.....	3+, *9-, 11, 22, 28-
District of Columbia:		Thomasville.....	6
Washington.....	4-, 5-, 7+, 9, 14-, 20+, *26-, *32+, 50	Toccoa.....	32-, *68-
Florida:		Valdosta.....	*33, 44-
Boca Raton.....	*63	Vidalia.....	*18+
Bradenton.....	*19	Waycross.....	*8+
Clearwater.....	22	Wrens.....	*20-
Cocoa.....	*18-, 52	Young Harris.....	*50+
Daytona Beach.....	2-, 26	Hawaii:	
Fort Lauderdale.....	51	Hilo (Hawaii).....	2, *4, 9, 11, 13, 14+, 20+, 26+, *32+, *38+
Fort Myers.....	11+, 20+, *30	Honolulu (Oahu).....	2+, 4-, 9-, *11+, 13-, 14, 20, 26, 32, *38, *44
Fort Pierce.....	*21-, 34	Lihue (Kauai).....	3+, *8-, 10, 12-, 15-, *21-, *27-, *67
Fort Walton Beach.....	35, 52+	Wailuku (Maui).....	3, 7, *10, 12, 15, 21, *27, *33
Gainesville.....	*5-, 20	Idaho:	
Hollywood.....	69	Boise.....	2, *4+, 7, 14
Jacksonville.....	4+, *7, 12+, 17, 30+, 47-, *59	Burley.....	*17+
Key West.....	16+, 22+	Caldwell.....	9-
Lake City.....	*41	Coeur d' Alene.....	*26+
Lakeland.....	32	Filer.....	*19-
Leesburg.....	*45-, 55	Grangeville.....	*15-
Madison.....	*36-	Idaho Falls.....	3, 8+, 20, *33+
Marianna.....	*16+	Lewiston.....	3-
Melbourne.....	43+, 56	Moscow.....	*12-
Miami.....	*2, 4, 6, 7-, 10+, *17-, 23-, 33, 39, 45+	Nampa.....	6, 12+
Naples.....	26-	Pocatello.....	6-, *10, 15, 25+, 31-
New Smyrna Beach.....	*15+	Preston.....	*28
Ocala.....	*20, 51-	Sandpoint.....	*16+
Orange Park.....	25-	Twin Falls.....	11, *13-
Orlando.....	6-, 9, *24-, 35+	Weiser.....	*17
Palatka.....	*42		
Panama City.....	7+, 13, *22+, 28-		
Pensacola.....	3-, *23, 33+, 44		

[Amended in III(80)-1:

Eff. 12-4-80:

New Haven, Conn.

Eff. 3-24-81:

Ft. Walton Beach, Fla.

Eff. 8-21-80:

Sebring, Fla.

Eff. 12-4-80:

Athens, Ga.]

	Channel No.
Illinois:	
Aurora.....	60
Bloomington.....	43
Carbondale.....	*8
Champaign.....	3+, 15-
Chicago.....	2-, 5, 7, 9+, *11, *20, 26, 32, 38-, 44
Danville.....	68
Decatur.....	17, 23-
DeKalb.....	*33
East St. Louis.....	46
Edwardsville.....	*18-
Elgin.....	*66+
Freeport.....	23, *65-
Galesburg.....	63
Harrisburg.....	3
Jacksonville.....	*64
Joliet.....	14-, 66+
Kankakee.....	*54-
LaSalle.....	35
Macomb.....	*22+
Marion.....	27
Moline.....	8, 24*
Mount Vernon.....	13+
Olney.....	16*
Peoria.....	19, 25+, 31+, 47-, *59+
Quincy.....	10-, 16+, *27+
Rockford.....	13, 17-, 39
Rock Island.....	4+
Springfield.....	20+, 49-, 55+, *65+
Streator.....	*64-
Urbana.....	*12-, 27-
Vandalia.....	*21
Indiana:	
Anderson.....	67+
Angola.....	63
Bloomington.....	4, *30-, 63+
Elkhart.....	28+
Evansville.....	7, *9+, 14-, 25-, 44-
Fort Wayne.....	15+, 21+, 33-, *39-, 55
Gary.....	*50, 56+
Hammond.....	62+
Indianapolis.....	6, 8-, 13-, *20-, 40, 59-, *69
Kokomo.....	29-
Lafayette.....	18, *24
Madison.....	*60+
Marion.....	23
Muncie.....	49, *61-
Richmond.....	43+
South Bend.....	16, 22, *34-, 46
Terre Haute.....	2+, 10, *26-, 38
Vincennes.....	*22-
Iowa:	
Ames.....	5, 23-, *34+
Burlington.....	26-, *57-
Carroll.....	*18-
Cedar Rapids.....	2, 9-, 28+
Centerville.....	*31-

	Channel No.
Iowa—Continued	
Council Bluffs.....	*32
Davenport.....	6+, 18+, 30-, *36+
Decorah.....	*14+
Des Moines.....	8-, *11+, 13-, 17+, *43-, 63-, 69
Dubuque.....	16-, *29-, 40-
Estherville.....	*49+
Fort Dodge.....	*21, 50-
Fort Madison.....	*38+
High Point.....	*14-
Iowa City.....	*12+, 20-
Keokuk.....	*44+
Keosauqua.....	*54+
Lansing.....	*41+
Mason City.....	3+, *24+
Mount Ayr.....	*25-
Ottumwa.....	15+, *33-
Red Oak.....	*36
Rock Rapids.....	*25+
Sibley.....	*33
Sioux City.....	4-, 9, 14, *27-
Spirit Lake.....	*38
Waterloo.....	7+, 22-, *32-
Kansas:	
Chanute.....	*30+
Colby.....	4
Columbus.....	*34+
Dodge City.....	6-, *21 -
Emporia.....	*25+
Garden City.....	*9, 11+, 13-
Goodland.....	10
Great Bend.....	2
Hays.....	7-, *14
Hutchinson.....	*8, 12, 36+
Lakin.....	*3
Manhattan.....	*21
Oakley.....	*15-
Parsons.....	*39
Phillipsburg.....	*22-
Pittsburgh.....	7-
Pratt.....	*32+
Randall.....	*9-
Salina.....	18+, 34-, 44
Sedan.....	*28
Topeka.....	*11, 13+, 27, 43, 49
Wichita.....	3-, 10-, *15+, 24-, 33, *42
Kentucky:	
Ashland.....	*25-, 61+
Beattyville.....	65
Bowling Green.....	13, 40+, *53-

<sup>1</sup> Following the decision in Docket No. 18261, channels so indicated will not be available for television use until further action by the Commission.

<sup>4</sup> This channel is not available for use at Elgin unless and until it is determined by the Commission that it is not needed for use at Joliet, Ill.

**[Amended in III(80)-1:**

*Eff. 7-20-81:*

*East St. Louis, Ill. Added]*

	<i>Channel No.</i>		<i>Channel No.</i>
<b>Kentucky—Continued</b>		<b>Massachusetts:</b>	
Campbellsville.....	34-	Boston.....	*2+, 4-, 5-, 7+, 25+, 38, *44+, 56, 68+
Covington.....	*54+	Greenfield.....	32+
Danville.....	56	New Bedford.....	6+, 28-, *47-
Elizabethtown.....	*23+	North Adams.....	19, *35
Hazard.....	*35+, 57-	Pittsfield.....	51+
Hopkinsville.....	51	Springfield.....	22, 40, *57+
Lexington.....	18+, 27-, 36, *46, 62	Worcester.....	14 <sup>1</sup> , 27, *48+, 66
Louisville.....	3-, 11, *15, 21-, 32-, 41+, *68+	<b>Michigan:</b>	
Madisonville.....	*35-	Alpena.....	*6, 11
Morehead.....	*38+	Ann Arbor.....	31+, *58+
Murray.....	*21+	Bad Axe.....	*15-
Owensboro.....	19-, 31-	Battle Creek.....	41+
Owenton.....	*52+	Bay City.....	5-, *19+, 61+
Paducah.....	6+, 29	Cadillac.....	9, *27
Paintsville.....	69+	Calumet.....	5-, *22-
Pikeville.....	*22-, 51+	Cheboygan.....	4+
Somerset.....	16, *29+	Detroit.....	2+, 4, 7-, 20+, 50-, *56, 62
<b>Louisiana:</b>		East Lansing.....	*23-, *69-
Alexandria.....	5, *25+, 31+, 41+	Escanaba.....	3+
Baton Rouge.....	2, 9-, *27+, 33-	Flint.....	12-, *28-, 66-
De Ridder.....	*23-	Grand Rapids.....	8+, 13+, 17, *35+
Houma.....	11	Iron Mountain.....	8-, *17+
Lafayette.....	3+, 10, 15, *24	Ironwood.....	*15-, 24+
Lake Charles.....	7-, *18, 29-	Jackson.....	18+
Monroe.....	8+, *13, 14-, 39+	Kalamazoo.....	3-, *52+, 64
Morgan City.....	*14+	Lansing.....	6-, 47, 53-
Natchitoches.....	*28-	Manistee.....	*21
New Iberia.....	36-	Manistique.....	*15+
New Orleans.....	4+, 6, 8-, *12, 20-, 26, *32+, 38+	Marquette.....	6-, *13, 19
Shreveport.....	3-, 12, *24-, 33	Mount Clemens.....	38+
Tallulah.....	*19	Mount Pleasant.....	*14
<b>Maine:</b>		Muskegon.....	54+
Augusta.....	*10-	Parma.....	10-
Bangor.....	2-, 5+, 7-	Petoskey.....	*23+
Calais.....	*13-	Port Huron.....	46+
Fort Kent.....	*46+	Saginaw.....	25-, 49-
Fryeburg.....	*18+	Sault Ste. Marie.....	8, 10+, *32-
Houlton.....	*25+	Traverse City.....	7+, 29-
Kittery.....	*34	West Branch.....	*24
Lewiston.....	8-, 35-	<b>Minnesota:</b>	
Millinocket.....	*44-	Alexandria.....	7, *24
Orono.....	*12-	Appleton.....	*10-
Portland.....	6-, 13+, *26-, 51	Austin.....	6-, *15-
Presque Island.....	8, *10+	Bemidji.....	*9, 26+
Rumford.....	*43+	Brainerd.....	*22
<b>Maryland:</b>		Crookston.....	*33
Annapolis.....	*22+	Duluth.....	3, *8, 10+, 21+, 27-
Baltimore.....	2+, 11-, 13+, 24+, 45, 54, *67-	Ely.....	*17-
Cumberland.....	52+, 65	Fairmont.....	*16+
Frederick.....	*62	Hibbing.....	13-, *18-
Hagerstown.....	25-, *31	International Falls.....	11, *35+
Oakland.....	*36+		
Salisbury.....	16+, *28-, 47-		
Waldorf.....	*58+		

<sup>1</sup> Following decision in Docket No. 18261, channels so indicated will not be available for television use until further action by the Commission.

**[Amended in III (80)-1:**

*Eff. 11-13-80:*

*Campbellsville and Danville, Ky. Added*

*Eff. 9-22-80:*

*Lexington, Ky.*

*Eff. 12-4-80:*

*Louisville, Ky.*

*Eff. 7-20-81:*

*Paintsville, Ky. Added*

*Eff. 12-4-80:*

*New Orleans, La.*

*Eff. 9-10-80:*

*Lansing and Saginaw, Mich.]*

	Channel No.
Minnesota—Continued	
Mankato.....	12, *26-
Marshall.....	*30-
Minneapolis-St. Paul.....	*2-, 4, 5-, 9+, 11-, *17, 23+, 29+
Rochester.....	10, 47-
St. Cloud.....	19, *25-, 41
St. James.....	32+
Thief River Falls.....	10
Wadena.....	*20-
Walker.....	12-
Willmar.....	*14-
Winona.....	*35+, 44-
Worthington.....	*20

Mississippi:	
Biloxi.....	13+, *19+, 25-
Booneville.....	*12-
Bude.....	*17+
Clarksdale.....	*21
Cleveland.....	*31-
Columbia.....	*45
Columbus.....	4-, 27, *43
Greenville.....	15-, 44
Greenwood.....	6+, *23+
Hattiesburg.....	22, *47
Houston.....	45+
Jackson.....	3+, 12+, 16, *29+, 40+
Laurel.....	7, 18+
Meridian.....	11-, *14, 24-, 30-
Mississippi State.....	*2+
Natchez.....	*42+
Oxford.....	*18
Senatobia.....	*34-
Tupelo.....	9-
Vicksburg.....	35-
Yazoo City.....	*32-

Missouri:	
Birchtree.....	*20-
Bowling Green.....	*35+
Cape Girardeau.....	12, 23, *39-
Carrollton.....	*18
Columbia.....	8+, 17-, *23+
Flat River.....	*22
Hannibal.....	7-
Jefferson City.....	13, 25, *36-
Joplin.....	12+, 16, *22-
Kansas City.....	4, 5+, 9+, *19+, 41-, 50-, 62+, *68-
King City.....	*28-
Kirksville.....	3-
LaPlata.....	*21+
Lowry City.....	*15-
Poplar Bluff.....	15+, *26-
Rolla.....	*28
St. Joseph.....	2-, 16-, 22
St. Louis.....	2, 4-, 5-, *9, 11-, 24+, 30+, *40-
Sedalia.....	6
Sikeston.....	45-
Springfield.....	3+, 10, *21-, 27-, 33-

	Channel No.
Montana:	
Billings.....	2, 8, *11, 14, 20+
Bozeman.....	7-, *9
Butte.....	*2+, 4, 6+, 18, 24
Cut Bank.....	*14-
Dillon.....	*14-
Glendive.....	5+, 13+, *16-
Great Falls.....	3+, 5+, 16, 26, *32
Hardin.....	4+
Havre.....	9+, 11+, *18-
Helena.....	10+, 12, *15+
Joplin.....	48, 54-
Kalispell.....	9-, +20-
Lewiston.....	13
Miles City.....	3-, *6, 10
Missoula.....	8-, *11-, 13-, 17-, 23-
Wolf Point.....	*17+

Nebraska:	
Albion.....	8+, *21+
Alliance.....	*13-
Bassett.....	*7-
Beatrice.....	*23+
Falls City.....	*24
Grand Island.....	11-, 17-
Hastings.....	5+, *29+
Hayes Center.....	6
Hay Springs-Scottsbluff.....	4+
Kearney.....	13
Lexington.....	*3+
Lincoln.....	10+, *12-, 45, 51
McCook.....	8-
Merriman.....	*12
Norfolk.....	*19+
North Platte.....	2-, *9+
Omaha.....	3, 6+, 7, 15, *26, 42+, *48+
Pawnee City.....	*33+
Scottsbluff.....	10-
Scottsbluff-Hay Springs.....	4+
Superior.....	4+

Nevada:	
Boulder City.....	5+
Elko.....	10-, *14+
Ely.....	3-, 6+
Fallon.....	*25
Goldfield.....	2-
Las Vegas.....	3, 8-, *10+, 13-, 21+
McGill.....	*13
Reno.....	2, 4, *5, 8, 21+, 27+
Tonopah.....	9-, *17+
Winnemucca.....	7+, *15-
Yerington.....	*16+

New Hampshire:	
Berlin.....	*40-
Concord.....	21+
Durham.....	*11
Hanover.....	*15+, 31

[Amended in III(80)-1:

Eff. 1-2-81:

Bozeman and Butte, Mont.]

	Channel No.		Channel No.
New Hampshire—Continued		North Carolina:	
Keene.....	*52+	Andrews.....	*59
Littleton.....	*49+	Asheville.....	13-, 21+, *33, 62+
Manchester.....	9-, 50-, 60+	Bryson City.....	*67-
Portsmouth.....	17-	Burlington.....	16
New Jersey:		Canton.....	*27
Asbury Park.....	*58	Chapel Hill.....	*4+
Atlantic City.....	*18 <sup>1</sup> , *36, 53+	Charlotte.....	3, 9+, 18, 36, *42+
Burlington.....	48-	Columbia.....	*2
Camden.....	*23+	Concord.....	*58
Little Falls.....	*50+	Durham.....	11+, 28+
Newark.....	13-, 68	Fayetteville.....	40+, 62
New Brunswick.....	*19- <sup>1</sup> , 47+, *58	Franklin.....	*56+
Paterson.....	41-	Goldsboro.....	17-
Trenton.....	*52-	Greensboro.....	2-, 48-, 61
Vineland.....	65-	Greenville.....	9-, 14, *25
Wildwood.....	40	Hickory.....	14-
New Mexico:		High Point.....	8-, *32+, 67+
Alamogordo.....	*18-	Jacksonville.....	19
Albuquerque.....	4+, *5+, 7+, 13+, 14-, 23-, *32+	Kannapolis.....	64-
Carlsbad.....	6-, *15+, *25-	Laurel Hill.....	59+
Clayton.....	*17	Lexington.....	20
Clovis.....	12-	Linville.....	*17
Deming.....	*16	Morganton.....	23-
Farmington.....	12+, *15+	New Bern.....	12+
Gallup.....	3, *8-, 10	Raleigh.....	5, 22, *34-
Hobbs.....	29+	Rocky Mount.....	47+
Las Cruces.....	*22-, 48+	Washington.....	7
Lovington.....	*19	Wilmington.....	3-, 6, 29+, *39-
Portales.....	*3+	Wilson.....	30-
Raton.....	*18-	Winston-Salem.....	12, *26+, 45
Roswell.....	8, 10-, 21-, 27-, *33+	North Dakota:	
Sante Fe.....	2+, *9+, 11-, 19-	Bismarck.....	*3, 5, 12-, 17-, 26+
Silver City.....	6, 10+, *12	Devils Lake.....	8+, *22+
Socorro.....	*15-	Dickinson.....	2+, 7, *9-
Tucumcari.....	*15	Ellendale.....	*19-
New York:		Fargo.....	6, 11+, *13, 15-
Albany-Schenectady.....	6, 10-, 13, *17+, 23-, *29+, 45	Grand Forks.....	*2, 14+, 27+
Amsterdam.....	*39+, 55	Jamestown.....	7-, *23
Binghamton.....	12-, 34, 40-, *46+	Minot.....	*6+, 10-, 13-, 14-, 24
Buffalo.....	2, 4-, 7+, 17, *23, 29-, 49-	Pembina.....	12
Carthage.....	7-	Valley City.....	4-
Corning.....	*30	Williston.....	*4, 8-, 11-, *75-
Elmira.....	18+, 36-	Ohio:	
Glens Falls.....	*58-	Akron.....	23+, *49+, 55-
Ithaca.....	52, *65+	Alliance.....	*45+
Jamestown.....	26+, *46	Ashtabula.....	15
Kingston.....	63	Athens.....	*20
Lake Placid.....	5, *34+	Bowling Green.....	*27+
Levittown.....	*21-	Cambridge.....	*44-
Massena.....	*18	Canton.....	17-, 67
New York.....	2, 4, 5+, 7, 9+, 11+, *25, 31-	Chillicothe.....	53
Oneonta.....	15 <sup>1</sup> , *42	Footnotes:	
Patchogue.....	67	<sup>1</sup> Following the decision in Docket No. 18261, channels so indicated will	
Plattsburg.....	*57	not be available for television use until further action by the Commission.	
Poughkeepsie.....	54+	<sup>2</sup> This channel is not available for use at Asbury Park unless and until	
Riverhead.....	55+	it is determined by the Commission that it is not needed for educational	
Rochester.....	8, 10+, 13-, *21, 31+, *61+	use at New Brunswick N.J.	
Syracuse.....	3-, 5-, 9-, *24+, 43+, 62+		
Utica.....	2-, 20+, 33, *50		
Watertown.....	*16, 50		

<sup>1</sup> Following the decision in Docket No. 18261, channels so indicated will not be available for television use until further action by the Commission.  
<sup>2</sup> This channel is not available for use at Asbury Park unless and until it is determined by the Commission that it is not needed for educational use at New Brunswick N.J.

[Amended in III (80)-1:  
 Eff. 4-20-81:  
 Laurel Hills, N.C. Added]

	<i>Channel No.</i>
<b>Ohio—Continued</b>	
Cincinnati.....	5-, 9, 12, 19+, *48-, 64-
Cleveland.....	3, 5+, 8, 19, *25+, 61
Columbus.....	4-, 6+, 10+, 28-, *34, *56-
Dayton.....	2, 7+, *16+, 22+, 45
Defiance.....	65+
Hillsboro.....	*24+
Lima.....	35-, 44+, *57+
Lorain.....	43
Mansfield.....	*47+, 68-
Newark.....	*31-, 51
Oxford.....	*14+
Portsmouth.....	30, *42-
Sandusky.....	52
Springfield.....	26+, *66
Steubenville.....	9+, *62+
Toledo.....	11-, 13, 24-, *30+, 36-
Youngstown.....	21-, 27, 33, *58
Zanesville.....	18-
<b>Oklahoma:</b>	
Ada.....	10+, *22
Altus.....	*19-
Ardmore.....	12-, *17 <sup>1</sup> , *28-
Bartlesville.....	17+
Cheyenne.....	*12+
Elk City.....	8+, *15-
Enid.....	20-, *26+
Eufaula.....	*3
Guymon.....	*16
Hugo.....	*15+, *48+
Hugo-Paris (Texas).....	42+
Lawton.....	7+, 16- <sup>1</sup> , *36-, 45
McAlester.....	*32-
Miami.....	*18-
Muskogee.....	19
Oklahoma City.....	4-, 5, 9-, *13, 14-, 25-, 34-, 43+, 52
Tulsa.....	2+, 6+, 8-, *11-, 23, *35-, 41+, 47
Woodward.....	*17-
<b>Oregon:</b>	
Astoria.....	*21
Bend.....	*15, 21+
Brookings.....	*14-
Burns.....	*18
Corvallis.....	*7-
Eugene.....	9+, 13, 16+, *28
Grants Pass.....	*18+
Klamath Falls.....	2-, *22+
LaGrande.....	*13+, 16
Medford.....	5, *8+, 10+, 12+
North Bend.....	11, *17+
Portland.....	2, 6+, 8-, *10, 12, 24+, *30, 40-
Roseburg.....	4+
Salem.....	*3+, 22, 32
The Dalles.....	*17-

	<i>Channel No.</i>
<b>Pennsylvania:</b>	
Allentown.....	*39, 69
Altoona.....	10-, 23-, 47, *57+
Bethlehem.....	60-
Clearfield.....	*3+
Erie.....	12, 24, 35+, *54+, 66+
Greensburg.....	40+
Harrisburg.....	21+, 27-, *33+
Hazleton.....	56
Johnstown.....	6, 8-, 19+, *28+
Lancaster.....	8+, 15+
Lebanon.....	59-
Philadelphia.....	3, 6-, 10, 17-, 29, *35-, 57
Pittsburgh.....	2-, 4+, 11, *13-, *16, 22, 53+
Reading.....	51
Scranton.....	16-, 22-, 38+, 44-, *64
State College.....	29+, *55+
Wilkes-Barre.....	28
Williamsport.....	120-
York.....	43, 49+
<b>Rhode Island:</b>	
Providence.....	10+, 12+, *16, *36, 64+
<b>South Carolina:</b>	
Aiken.....	*44
Allendale.....	*14
Anderson.....	40
Beaufort.....	*16-
Charleston.....	2+, 4, 5+, *7-
Columbia.....	10-, 19+, 25-, *35+, 57-
Conway.....	*23+
Florence.....	14+, 15-, 21, *33+
Georgetown.....	*41-
Greenville.....	4-, 16+, *29
Greenwood.....	*38
Myrtle Beach.....	43+
Rock Hill.....	30+, *55-
Spartanburg.....	7+, 49
Sumter.....	*27-
<b>South Dakota:</b>	
Aberdeen.....	9-, *16-
Allen.....	22+
Brookings.....	*8
Eagle Butte.....	*13
Huron.....	12+
Lead.....	5-, 11+
Lowry.....	*11-, 56, 62+, 68-
Martin.....	*8-
Mitchell.....	5+
Pierre.....	4, *10+
Rapid City.....	3+, 7+, *9, 15-, 21-
Reliance.....	6-
Seneca.....	*2-
Sioux Falls.....	11, 13+, 17-, *23, 36+

<sup>1</sup> Following the decision in Docket No. 18261, channels so indicated will not be available for television use until further action by the Commission.

**[Amended in III(80)-1:**

- Eff. 1-12-81:*
- Mansfield, Ohio*
- Eff. 1-12-81:*
- Marion, Ohio Removed*
- Eff. 9-10-80:*
- Sandusky and Toledo, Ohio*
- Eff. 9-22-80:*
- LaGrande, Ore.*
- Eff. 8-11-80:*
- Portland, Ore.*
- Eff. 12-4-80:*
- Johnstown and Lancaster, Pa.]*

	Channel No.		Channe No.
South Dakota—Continued		Texas—Continued	
Vermillion.....	*2+	Midland.....	2+, 18
Watertown.....	3-	Monahans-Odessa.....	9-
Tennessee:		Nacogdoches.....	19-, *32
Athens.....	*24	Odessa.....	7-, 24-, 30, *36+
Chattanooga.....	3+, 9, 12+, *45, 61-	Paris-Hugo (Oklahoma).....	42+
Cookeville.....	*22, 28+	Port Arthur.....	4-
Crossville.....	*20+, *55+	Presidio.....	7+
Fayetteville.....	*52-	Richardson.....	23
Greenville.....	39-	Rio Grande City.....	40
Jackson.....	7+, 16+, *32+	Rosenberg.....	45
Johnson City.....	11-, *41	San Angelo.....	3-, 6, 8+, *21+
Kingsport.....	19	San Antonio.....	4, 5, *9-, 12+, *23-, 29+, 41+
Knoxville.....	6, 8, 10+, *15-, 26-, 43+	Sherman.....	20-, *26-
Lexington.....	*11+	Sonora.....	11+
Memphis.....	3-, 5+, *10+, 13+, *14+, 24, 30	Sweetwater.....	12
Murfreesboro.....	39+	Temple.....	6+, 46-
Nashville.....	2-, 4+, 5, *8+, 17+, 30+, *42	Texarkana.....	6, 17-, *34
Sneedville.....	*2+	Tyler.....	7, 14+, *38
Texas:		Victoria.....	19+, 25, 31
Abilene.....	9+, 15, *26+, 32+	Waco.....	10+, 25+, *34+, 44-
Alpine.....	12-	Weslaco.....	5-
Amarillo.....	*2-, 4, 7, 10, 14+	Wichita Falls.....	3+, 6-, 18-, *24
Austin.....	7+, *18+, 24, 36, 42-	Utah:	
Bay City.....	*43+	Cedar City.....	4, *16+
Beaumont.....	6-, 12-, 21, *34-	Logan.....	12-, *22
Big Spring.....	4-, *14	Moab.....	*14+
Boquillas.....	8-	Monticello.....	*16-
Brady.....	13	Ogden.....	*9+, *18-, 24, 30
Brownsville.....	23	Price.....	3+, *15
Bryan.....	3, *15-	Provo.....	*11+, 16
Childress.....	*21	Richfield.....	8+, *19
Corpus Christi.....	3-, 6, 10-, *16, 28-, 38+	Salt Lake City.....	2-, 4-, 5+, *7-, 13+, 14-, 20+, *26-
Dallas.....	4+, 8, *13+, 27-, 33+, 39	St. George.....	*18-
Del Rio.....	10, *24+	Vernal.....	6, *17+
Denton.....	*2	Vermont:	
El Paso.....	4, 7, 9, *13, 14, 26+, *38-	Burlington.....	3, 22+, *33-
Fort Stockton.....	5+	Rutland.....	*28+
Fort Worth.....	5+, 11-, 21-, *31+	St. Johnsbury.....	*20-
Galveston.....	*22, 48-	Windsor.....	*41
Harlingen.....	4+, *44, 60	Virginia:	
Houston.....	2-, *8-, 11+, 13-, *14, 20, 26, 39-	Blacksburg.....	*43
Irving.....	49	Bluefield.....	*63+
Laredo.....	8, 13, 27-, *39	Bristol.....	5+, *28-
Longview.....	16+ <sup>1</sup> , 51-	Charlottesville.....	29-, *41-, 64+
Lubbock.....	*5-, 11, 13-, 28, 34-	Courtland.....	*52
Lufkin.....	9	<sup>1</sup> Following the decision in Docket No. 18261, channels so indicated will not be available for television use until further action by the Commission.	
Marfa.....	3	<b>[Amended in III(80)-1:</b>	
Marshall.....	*22-, 35+	<i>Eff. 8-13-80:</i>	
McAllen.....	48	<i>Crossville, Tenn.</i>	
		<i>Eff. 12-4-80:</i>	
		<i>Knorville and Lexington, Tenn.</i>	
		<i>Eff. 12-22-80:</i>	
		<i>El Paso, Tx.</i>	
		<i>Eff. 9-15-80:</i>	
		<i>Irving, Tx. Added</i>	
		<i>Eff. 7-20-80:</i>	
		<i>Rio Grande City, Tx. Added</i>	
		<i>Eff. 6-9-80:</i>	
		<i>Victoria, Tx.</i>	
		<i>Eff. 12-4-80:</i>	
		<i>Salt Lake City, Utah]</i>	

	Channel No.
Virginia—Continued	
Danville.....	24-, 44+, *56
Fairfax.....	*56-
Fredericksburg.....	*53, 69+
Front Royal.....	*42
Hampton.....	13-, *15
Harrisonburg.....	3-
Kenbridge.....	*31-
Lynchburg.....	13, 21-, *54+
Manassas.....	66+
Marion.....	*52-
Norfolk-Portsmouth-Newport News.....	3+, 10+, 27, 33, 49-, *55+
Norton.....	*47-
Onancock.....	*25+
Petersburg.....	8
Richmond.....	6+, 12-, *23, 35+, *57-, 63
Roanoke.....	7-, 10, *15+, 27+
Staunton.....	*51-
West Point.....	*46
Washington:	
Anacortes.....	24
Bellingham.....	12+, *34, 64
Centralia.....	*15+
Everett.....	16-
Kennewick.....	42+
Pasco.....	19-
Pullman.....	*10-
Richland.....	25, *31
Seattle.....	4, 5+, 7, *9, 22+, *28+
Spokane.....	2-, 4-, 6-, *7+, 22, 28-
Tacoma.....	11+, 13-, 20, *56, *62
Vancouver.....	*14, 49-
Walla Walla.....	14-
Wenatchee.....	*18+, 27
Yakima.....	23+, 29+, 35, *47
West Virginia:	
Beckley.....	4
Bluefield.....	6-, 40-
Charleston.....	8+, 11+, 23, 29, *49-
Clarksburg.....	12+, 46-
Fairmont.....	66-
Grandview.....	*9-
Huntington.....	3+, 13+, *33+
Keyser.....	*48+
Martinsburg.....	*44
Morgantown.....	*24-
Parkersburg.....	15-, 39+, *57
Weirton.....	*50+
Weston.....	5
Wheeling.....	7, 14, *41
Williamson.....	*31+
Wisconsin:	
Appleton.....	32+
Bloomington.....	*49
Colfax.....	*28-
Eau Claire.....	13+, 18
Found du Lac.....	34+
Green Bay.....	2+, 5+, 11+, 26+, *38
Highland.....	*51
Janesville.....	57+
Kenosha.....	55-
Kielier.....	*46+

	Channel No.
Wisconsin—Continued	
LaCrosse.....	8+, 19+, 25, *31
Madison.....	3, 15, *21-, 27+, 47+
Manitowoc.....	16+
Milwaukee.....	4-, 6, *10+, 12, 18-, 24+, 30, *36
Oshkosh.....	22+
Park Falls.....	*36+
Racine.....	49+
Rhineland.....	12+
Sheboygan.....	28
Superior.....	6+, 40
Suring.....	14-
Tomah.....	43+
Wausau.....	7-, *20+, 33-
Wyoming:	
Casper.....	2+, *6+, 14-, 20-
Cheyenne.....	5+, *17, 27-, 33-
Lander.....	4
Laramie.....	*8+
Rawlins.....	11-
Riverton.....	10+
Rock Springs.....	13
Sheridan.....	7, 12+

*U.S. Territories and Possessions*

Guam:	
Agana.....	*4, 8, 10, *12
Puerto Rico:	
Aguadilla.....	*32, 44
Arecibo-Aguadilla.....	12+
Arecibo.....	54, 80
Bayamon.....	36
Caguas.....	11-, *58
Carolina.....	52
Cayey.....	76
Fajardo.....	13+, *40
Guayama.....	46
Humacao.....	68
Mayaguez.....	3+, 5-, 16, 22
Ponce.....	7+, 9-, 14, 20, *26, 48
San Juan.....	2+, 4-, *6+, 18, 24, 30, *74
San Sebastian.....	38
Utuado.....	*70
Vega Baja.....	64
Yauco.....	42
Virgin Islands:	
Charlotte Amalie.....	10-, 17, *23, 43
Christiansted.....	8+, 15, *21, 27
Charlotte Amalie-Christiansted.....	*3, *12

<sup>1</sup> Following the decision in Docket No. 18261, channels so indicated will not be available for television use until further action by the Commission.

<sup>2</sup> Stations using these assignments shall limit radiation toward stations on the same channel in Puerto Rico, to no more than the effective radiated power which would be radiated by an omnidirectional station using maximum permissible effective radiated power for antenna height above average terrain, at the minimum distances from such stations specified in § 73.610(b). The Commission shall consider the status of the negotiations with the appropriate British authorities concerning these assignments when the applications for construction permits come before the Commission.

**[Amended in III(80)-1:  
Eff. 12-4-80:  
Charleston, W. Va.]**

§ 73.607 Availability of channels.

(a) Subject to the provisions of paragraph (b) of this section, applications may be filed to construct television broadcast stations only on the channels assigned in the Table of Assignments (§ 73.606 (b)) and only in communities listed therein. Applications which fail to comply with this requirement, whether or not accompanied by a petition to amend the Table, will not be accepted for filing: *Provided, however*, That applications specifying channels which accord with publicly announced Commission Orders changing the Table of Assignments will be accepted for filing even though such applications are tendered before the effective dates of such channel changes.

(b) A channel assigned to a community listed in the Table of Assignments is available upon application in any unlisted community which is located within 15 miles of the listed community. In addition, a channel assigned to a community listed in the Table of Assignments and not designated for use by noncommercial educational stations only, is available upon application in any other community within 15 miles thereof which, although listed in the Table, is assigned only a channel designated for use only by noncommercial educational stations. Where channels are assigned to two or more communities listed in combination in the Table of Assignments the provisions of this paragraph shall apply separately to each community so listed. The distance between communities shall be determined by the distance between the respective coordinates thereof as set forth in the publication of the United States Department of Commerce entitled "Air Line Distance Between Cities in the United States." (This publication may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.) If said publication does not contain the coordinates of either or both communities, the coordinates of the main post office in either or both of such communities shall be used. The method to be followed in making the measurements is set forth in § 73.611 (d).

§ 73.608 International agreements.

See § 73.1650.

§ 73.609 Zones.

(a) For the purpose of allocation and assignment, the United States is divided into three zones as follows:

(1) Zone I consists of that portion of the United States located within the confines of the following lines drawn on the United States Albers Equal Area Projection Map (based on standard parallels 29½° and 45½°; North American datum): Beginning at the most easterly point on the State boundary line between North Carolina and Virginia; thence in a straight line to a point on the Virginia-West Virginia boundary line located at north latitude 37°49' and west longitude 80°12'30"; thence westerly along the southern boundary lines of the States of West Virginia, Ohio, Indiana, and Illinois to a point at the junction of the Illinois,

Kentucky, and Missouri State boundary lines; thence northerly along the western boundary line of the State of Illinois to a point at the junction of the Illinois, Iowa, and Wisconsin State boundary lines; thence easterly along the northern State boundary line of Illinois to the 90th meridian; thence north along this meridian to the 43.5° parallel; thence east along this parallel to the United States-Canada border; thence southerly and following that border until it again intersects the 43.5° parallel; thence east along this parallel to the 71st meridian; thence in a straight line to the intersection of the 69th meridian and the 45th parallel; thence east along the 45th parallel to the Atlantic Ocean. When any of the above lines pass through a city, the city shall be considered to be located in Zone I. (See Figure 1 of § 73.699.)

(2) Zone II consists of that portion of the United States which is not located in either Zone I or Zone III, and Puerto Rico, Alaska, Hawaiian Islands and the Virgin Islands.

(3) Zone III consists of that portion of the United States located south of a line, drawn on the United States Albers Equal Area Projection Map (based on standard parallels 29½° and 45½°; North American datum), beginning at a point on the east coast of Georgia and the 31st parallel and ending at the United States-Mexican border, consisting of arcs drawn with a 150 mile radius to the north from the following specific points:

	North latitude	West longitude
(a) .....	29°40'00"	83°24'00"
(b) .....	30°07'00"	84°12'00"
(c) .....	30°31'00"	86°30'00"
(d) .....	30°48'00"	87°58'30"
(e) .....	30°00'00"	90°38'30"
(f) .....	30°04'30"	93°19'00"
(g) .....	29°46'00"	95°05'00"
(h) .....	28°43'00"	96°39'30"
(i) .....	27°52'30"	97°32'00"

When any of the above arcs pass through a city, the city shall be considered to be located in Zone II. (See Figure 2 of § 73.699.)

§ 73.610 Minimum distance separations between stations.

(a) The provisions of this Section relate to assignment separations and station separations. Petitions to amend the Table of Assignments (§ 73.606 (b)) (other than those also expressly requesting amendment of this section or § 73.609) will be dismissed and all applications for new television broadcast stations or for changes in the transmitter sites of existing stations will not be accepted for filing if they fail to comply with the requirements specified in paragraphs (b), (c) and (d) of this Section.

NOTE: Licensees and permittees of television broadcast stations which were operating on April 14, 1952, pursuant to one or more separations below those set forth in § 73.610 may continue to so operate, but in no event may they further reduce the separations below the minimum. As the existing separations of such stations are increased, the new separations will become the required minimum separations until separations are reached which comply with the requirements of § 73.610. Thereafter, the provisions of said Section shall be applicable.

(b) Minimum co-channel assignment and station separations:

(1)

Zone	Channels 2-13	Channels 14-83
	<i>Miles</i>	<i>Miles</i>
I.....	170	155
II.....	190	175
III.....	220	205

(2) The minimum co-channel mileage separation between a station in one zone and a station in another zone shall be that of the zone requiring the lower separation.

(c) Minimum assignment and station adjacent channel separations applicable to all zones:

(1) Channels 2-13	Channels 14-83
60 miles	55 miles

(2) Due to the frequency spacing which exists between Channels 4 and 5, between Channels 6 and 7, and between Channels 13 and 14, the minimum adjacent channel separations specified above shall not be applicable to these pairs of channels (see § 73.603 (a)).

(d) In addition to the requirements of paragraphs (a), (b), and (c) of this section, the minimum assignment and station separations between stations on Channels 14-83, inclusive, set forth in Table IV of § 73.698 must be met in either rule-making proceedings looking towards the amendment of the Table of Assignments (§ 73.606 (b)) or in licensing proceedings. No channel listed in column (1) of Table IV of § 73.698 will be assigned to any city, and no application for an authorization to operate on such a channel will be granted, unless the mileage separations indicated at the top of columns (2) - (7), inclusive, are met with respect to each of the channels listed in those columns and parallel with the channel in column (1).

(e) The zone in which the transmitter of a television station is located or proposed to be located determines the applicable rules with respect to co-channel mileage separations where the transmitter is located in a different zone from that in which the channel to be employed is located.

**§ 73.611 Reference points and distance computations.**

(a) In considering petitions to amend the Table of Assignments (§ 73.606 (b)), the following reference points shall be used by the Commission in determining assignment separations between communities:

(1) Where transmitter sites for the pertinent channels have been authorized in communities involved in a petition to amend the Table of Assignments, separations between such communities shall be determined by the distance between the coordinates of the authorized transmitter sites in the respective communities as set forth in the Commission's authorizations therefor.

(2) Where an authorized transmitter site is available for use as a reference point in one community but not in the other for the pertinent channels, separa-

tions shall be determined by the distance between the coordinates of the transmitter site as set forth in the Commission's authorization therefor and the coordinates of the other community as set forth in the publication of the United States Department of Commerce, entitled "Air Line Distances Between Cities in the United States." If said publication does not contain the coordinates for said other community, the coordinates of the main post office thereof shall be used.

(3) Where no authorized transmitter sites are available for use as reference points in both communities for the pertinent channels, the distance between the two communities listed in the above publication shall be used. If said publication does not contain such distance, the separation between the two communities shall be determined by the distance between the coordinates thereof as set forth in said publication. Where such coordinates are not contained in said publication, the coordinates of the main post offices of said communities shall be used.

(4) Where the distance between the reference point in a community to which a channel is proposed to be assigned and the reference point in another community or communities does not meet the minimum separation requirements of § 73.610, the channel may be assigned to such community upon a showing that a transmitter site is available that would meet the minimum separation requirements § 73.610 and the minimum field intensity requirements of § 73.685. In such cases, where a station is not authorized in the community or communities to which measurements from the proposed channel assignment must be made pursuant to § 73.610, a showing should also be made that the distance between suitable transmitter sites in such other community or communities and the proposed transmitter site for the new channel meet the Commission's minimum spacing and coverage requirements.

(b) Station separations in licensing proceedings shall be determined by the distance between the coordinates of the proposed transmitter site in one community and

(1) The coordinates of an authorized transmitter site for the pertinent channel in the other community; or, where such transmitter site is not available for use as a reference point,

(2) The coordinates of the other community as set forth in the above-described publication of the United States Department of Commerce; or, if not contained therein,

(3) The coordinates of the main post office of such other community,

(4) In addition, where there are pending applications in other communities which, if granted, would have to be considered in determining station separations, the coordinates of the transmitter sites proposed in such applications must be used to determine whether the requirements with respect to minimum separations between the proposed stations in the respective cities have been met.

(c) In measuring assignment and station separations involving cities listed in the Table in combination, where there is no authorized transmitter site in any of the combination cities on the channel involved, separation measurements shall be made from the reference point which will result in the lowest separation.

(d) The distance between reference points is considered to be the length of the hypotenuse of a right triangle, one side of which is the difference in latitude of the reference points and the other side the difference in longitude of the two reference points, and shall be computed according to the method described in this paragraph. This method is appropriate for determining distances up to 220 miles, and for such distances will normally be more accurate than using spherical trigonometry without correction for the spheroidal shape of the earth. However, its accuracy deteriorates rapidly at distances beyond 300 miles and this method should not be used to compute greater distances.

(1) Determine the difference in latitude and the difference in longitude between the two reference points. Convert these two differences into degrees and decimal parts of a degree in accordance with Table I of § 73.698.

(2) Determine the middle latitude of the two reference points to the nearest second of latitude (average the latitudes of the two points).

(3) Multiply the difference in latitude by the number of miles per degree of latitude difference obtained from Table II of § 73.698 for the appropriate middle latitude (interpolate linearly). This determines the North-South distance in statute miles.

NOTE: In determining necessary distance computations for Alaska, Hawaii, and the Territories, the appropriate mileage per degree may be obtained by linear interpolation of the data given on pages 1246 and 1247 of the tables in publication H. O. No. 9 (Bowditch-American Practical Navigator—1958 Edition) of the U.S. Navy Department, Hydrographic Office. This publication may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.

(4) Multiply the difference in longitude by the number of miles per degree of longitude difference obtained from Table III of § 73.698, for the appropriate middle latitude (interpolate linearly). This determines the East-West distance in statute miles.

(5) Determine the distance between the two reference points by the square root of the sum of the squares of the distances obtained in subparagraphs (3) and (4) of this paragraph, that is:

$$D = (L_n^2 + L_w^2)^{1/2}$$

where:

$D$  = Distance in statute miles

$L_n$  = North-South distance in miles (from subparagraph (3) of this paragraph)

$L_w$  = East-West distance in miles (from subparagraph (4) of this paragraph)

In computing the above, sufficient decimal figures shall be used to determine the distance to the nearest mile.

§ 73.612 Protection from interference.

(a) Permittees and licensees of television broadcast stations are not protected from any interference which may be caused by the grant of a new station or of authority to modify the facilities of an existing station in accordance with the provisions of this subpart. The nature and extent of the protection from interference accorded to television broadcast stations is limited solely to the protection which results from the minimum assignment and station separation requirements and the rules and regulations with respect to maximum powers and antenna heights set forth in this Subpart.

(b) When the Commission determines that grant of an application would serve the public interest, convenience, and necessity and the instrument of authorization specifies an antenna location in a designated antenna farm area which results in mileage separation less than those specified in this subpart, TV broadcast station permittees and licensees shall be afforded protection from interference equivalent to the protection afforded under the minimum mileage separation specified in this Subpart.

NOTE: The nature and extent of the protection from interference accorded to television broadcast stations which were authorized prior to April 14, 1952, and which were operating on said date is limited not only as specified above but is further limited by any smaller separations existing between such stations on said date. Where, as a result of the adoption of the Table of Assignments, or of changes in transmitter sites made by such stations after said date, separations smaller than the required minimum are increased but still remain lower than the required minimum, protection accorded such stations will be limited to the new separations.

§ 73.613 Main studio location.

See §§ 73.1120, 73.1125 and 73.1130.

§ 73.614 Power and antenna height requirements.

(a) *Minimum requirements.* Applications will not be accepted for filing if they specify less than -10dBk (100 watts) horizontally polarized visual effective radiated power in any horizontal direction. No minimum antenna height above average terrain is specified.

(b) *Maximum power.* Applications will not be accepted for filing if they specify a power in excess of that provided for in this paragraph. Except as provided in subparagraph (1) of this paragraph, the maximum horizontally polarized effective radiated powers of television broadcast stations operating on the channels set forth below with antenna heights not in excess of 2,000 feet above average terrain shall be as follows:

Channel Nos.	Maximum visual effective radiated power in dB above one kilowatt (dBk)
2-6	20 dBk (100 kW).
7-13	25dBk (316 kW).
14-83	37 dBk (5000 kW). <sup>1</sup>

<sup>1</sup> The maximum visual effective radiated power of television broadcast stations operating on Channels 14-83 within 250 miles of the Canadian-United States border may not be in excess of 30 dBk (1000 kW).

(1) In Zone I, on Channels 2-13, inclusive, the maximum powers specified above for these channels may be used only with antenna heights not in excess of 1,000 feet above average terrain. Where antenna heights exceeding 1,000 feet above average terrain are used on Channels 2-13, or antenna heights exceeding 2,000 feet above average terrain are used on Channels 14-83, the maximum power shall be based on the chart designated as Figure 3 of § 73.699.

NOTE: This limitation shall not apply to any licensee or permittee in Zone I who received an authorization after March 22, 1951, to relocate its transmitter site and construct a new tower and antenna to a height in excess of 1000 feet above average terrain and who constructed or who had substantially completed construction of said tower and antenna prior to April 14, 1952. In such case, maximum power may be utilized at the height above average terrain specified in the authorization. The limitation shall apply, however, where the tower or other principal supporting structure had been constructed prior to the date of such authorization.

(2) In Zones II and III, the maximum powers which may be used by television broadcast stations operating on the respective channels set forth in the above table with antenna heights exceeding 2,000 feet above average terrain shall be based on the chart designated as Figure 4 of § 73.699.

(3) The effective radiated power in any horizontal or vertical direction may not exceed the maximum values permitted by this section and Figures 3 and 4 of § 73.699.

(4) The effective radiated power at any angle above the horizontal shall be as low as the state of the art permits, and in the same vertical plane may not exceed the effective radiated power in either the horizontal direction or below the horizontal, whichever is greater.

(c) *Determination of applicable rules.* The zone in which the transmitter of a television station is located or proposed to be located determines the applicable rules with respect to maximum antenna heights and powers for VHF stations when the transmitter is located in Zone I and the channel to be employed is located in Zone II, or the transmitter is located in Zone II and the channel to be employed is located in Zone I.

#### § 73.615 Administrative changes in authorizations.

In the issuance of television broadcast station authorizations, the Commission will specify the transmitter output power and effective radiated power to the nearest 0.1 dBk. Powers specified by kilowatts shall be obtained by converting dBk to kilowatts to 3 significant figures. Antenna heights above average terrain will be specified to the nearest 10 feet. Midway figures will be authorized in the lower alternative.

#### APPLICATIONS AND AUTHORIZATIONS

#### § 73.620 [Reserved]

#### § 73.621 Noncommercial educational stations.

In addition to the other provisions of this subpart, the following shall be applicable to noncommercial educational television broadcast stations:

(a) Except as provided in paragraph (b) of this Section, noncommercial educational broadcast stations will be licensed only to nonprofit educational organizations upon a showing that the proposed stations will be used primarily to serve the educational needs of the community; for the advancement of educational programs; and to furnish a nonprofit and noncommercial television broadcast service.

(1) In determining the eligibility of publicly supported educational organizations, the accreditation of their respective state departments of education shall be taken into consideration.

(2) In determining the eligibility of privately controlled educational organizations, the accreditation of state departments of education or recognized regional and national educational accrediting organizations shall be taken into consideration.

(b) Where a municipality or other political subdivision has no independently constituted educational organization such as, for example, a board of education having autonomy with respect to carrying out the municipality's educational program, such municipality shall be eligible for a noncommercial educational television broadcast station. In such circumstances, a full and detailed showing must be made that a grant of the application will be consistent with the intent and purpose of the Commission's rules and regulations relating to such stations.

(c) Noncommercial educational television broadcast stations may transmit educational, cultural and entertainment programs, and programs designed for use by schools and school systems in connection with regular school courses, as well as routine and administrative material pertaining thereto.

(d) A noncommercial educational television station may broadcast programs produced by or at the expense of, or furnished by persons other than the licensee, if no other consideration than the furnishing of the program and the costs incidental to its production and broadcast are received by the licensee. The payment of line charges by another station, network, or someone other than the licensee of a noncommercial education television station, or general contributions to the operating costs of a station, shall not be considered as being prohibited by this paragraph.

(e) Each station shall furnish a nonprofit and noncommercial broadcast service. However, noncommercial educational television stations shall be subject to the provisions of § 73.654 to the extent that they are applicable to the broadcast of programs produced by, or at the expense of, or furnished by others, except that no announcements (visual or aural) promoting the sale of a product or service shall be broadcast in connection with any program: *Provided, however,* That where a sponsor's name or product appears on the visual image during the course of a simultaneous or rebroadcast program either on the backdrop or in similar form, the portions of the program showing such information need not be deleted.

**NOTE 1:** Announcements of the producing or furnishing of programs, or the provision of funds for their production, may be no more than twice, at the opening and at the close of any program, except that where a program lasts longer than 1 hour an announcement may be made at hourly intervals during the program if the last such announcement occurs at least 15 minutes before the announcement at the close of the program. The person or organization furnishing or producing the program or providing funds for its production, shall be identified by name only, except that in the case of a commercial company having *bona fide* operating divisions or subsidiaries one of which has furnished the program or funds, the division or subsidiary may be mentioned in addition to or instead of the commercial company. No material beyond the company (or division or subsidiary) name shall be included. Upon request for waiver of this provision, the Commission may authorize the inclusion of brief additional descriptive material only when deemed necessary to avoid confusion with another company having the same or a similar name. No mention shall be made of any product or service with which a commercial enterprise being identified has a connection, except to the extent the name of the product or service is the same as that of the enterprise (or division or subsidiary) and is so included. A repeat broadcast of a particular program is considered a separate program for the purpose of this note.

**NOTE 2:** Announcements may be made of general contributions of a substantial nature which make possible the broadcast of programs for part, or all, of the day's schedule. Such announcements may be made at the opening and closing of the day or segment, including all of those persons or organizations whose substantial contributions are making possible the broadcast day or segment. In addition, one such general contributor may be identified once during each hour of the day or segment. The provisions of Note 1 of this section as to permissible contents apply to announcements under this note.

**NOTE 3:** The limitations on credit announcements imposed by Notes 1 and 2 of this section shall not apply to program material, the production of which was completed before January 1, 1971, or to other announcements broadcast before January 1, 1971, pursuant to underwriting agreements entered into before November 30, 1970.

**NOTE 4:** The provisions of Notes 1 and 2 of this section shall not apply during the broadcast times in which "auctions" are held to finance station operation. Credit announcements during "auction" broadcasts may identify particular products or services, but shall not include promotion of such products or services beyond that necessary for the specific auction purpose. Visual exposure may be given to a display in the auction area including the underwriter's name and trademark, and product or service or a representation thereof.

**NOTE 5:** The numerical limitations on permissible announcements contained in Notes 1 and 2 of this section do not apply to announcements on behalf of noncommercial, nonprofit entities, such as the Corporation of Public Broadcasting, State or regional entities, or charitable foundations.

**§ 73.622 [Deleted]**

**§ 73.623 Applications for sharing of television channels.**

See § 73.1715.

**§ 73.624 Notification of filing of applications.**

See § 73.1030.

**§ 73.627 Special field test authorizations.**

See § 73.1515.

**§ 73.628 Equipment tests.**

See § 73.1610.

**§ 73.629 Program tests.**

See § 73.1620.

**§ 73.630 Normal license period.**

See § 73.1020.

**§ 73.633 Fraudulent billing practices.**

See § 73.1205.

**§ 73.635 Use of common antenna site.**

No television license or renewal of a television license will be granted to any person who owns, leases, or controls a particular site which is peculiarly suitable for television broadcasting in a particular area and (a) the site is not available for use by other television licensees; and (b) no other comparable site is available in the area; and (c) where the exclusive use of such site by the applicant or licensee would unduly limit the number of television stations that can be authorized in a particular area or would unduly restrict competition among television stations.

**§ 73.636 Multiple ownership.**

(a) (1) No license for a television broadcast station shall be granted to any party (including all parties under common control) if such party directly or indirectly owns, operates, or controls: one or more television broadcast stations and the grant of such license will result in any overlap of the Grade B contours of the existing and proposed stations, computed in accordance with § 73.684; or one or more AM broadcast stations and the grant of such license will result in the Grade A contour of the proposed station, computed in accordance with the § 73.684, encompassing the entire community of license of one of the AM broadcast stations, or will result in the predicted or measured 2 mV/m groundwave contour(s) of the standard broadcast station(s), computed in accordance with § 73.183 or § 73.186, encompassing the entire community of license of the proposed station, or one or more FM broadcast stations and the grant of such license will result in the Grade A contour of the proposed station, computed in accordance with § 73.684, encompassing the entire community of license of one of the FM broadcast stations, or will result in the predicted 1 mV/m contour(s) of the FM broadcast station(s), computed in accordance with § 73.313, encompassing the entire community of license of the pro-

posed station; or a daily newspaper and the grant of such license will result in the Grade A contour, computed in accordance with § 73.684, encompassing the entire community in which such newspaper is published.

(2) No license for a television broadcast station shall be granted to any party (including all parties under common control) if such party, or any stockholder, officer, or director of such party, directly or indirectly owns, operates, controls or has any interest in, or is an officer or director of any other television broadcast station if the grant of such license would result in a concentration of control of television broadcasting in a manner inconsistent with the public interest, convenience, or necessity. The Commission, however, will in any event consider that there would be such a concentration of control contrary to the public interest, convenience or necessity for any party or any of its stockholders, officers or directors, to have a direct or indirect interest in, or be stockholders, officers, or directors of, more than seven television broadcast stations, no more than five of which may be in the VIIF band, or of three broadcast stations in one or several services, where any two are within 100 miles of the third (measured city to city), if there is primary service contour overlap of any of the stations.

(3) The reference points which shall be used for city-to-city measurements are those listed in the Index to *The National Atlas of the United States of America*, United States Department of Interior, Geological Survey, Washington, D.C. 1970. (Future editions will supersede.) In the case of any community of license which is not referenced by the National Atlas, such as a newly established community, the point of reference shall be the main post office until such town is referenced. The National Atlas is available for reference at most public libraries and at the FCC in Washington.

(b) Paragraphs (a) and (c) of this section are not applicable to noncommercial educational television stations.

(c) No renewal of license shall be granted for a term extending beyond January 1, 1980, to any party that as of January 1, 1975, directly or indirectly owns, operates or controls the only daily newspaper published in a community and also as of January 1, 1975, directly or indirectly owns, operates or controls the only commercial television station encompassing the entire community with a city-grade signal. The provisions of this paragraph shall not require divestiture of any interest not in conformity with its provisions earlier than January 1, 1980.

NOTE 1.—The word "control" as used herein is not limited to majority stock ownership, but includes actual working control in whatever manner exercised.

NOTE 2.—In applying the provisions of paragraphs (a)(1) and (c) of this section, partial (as well as total) ownership interests in corporate broadcast licensees and corporate daily newspapers represented by ownership of voting stock of such corporations will be considered.

NOTE 3.—Except as provided in Notes 4 and 5 of this section, in applying the provisions of paragraphs (a)(1), (a)(2), and (c) of this section to the stockholders, of a corporation which has more than 50 voting stockholders, of a corporation which has more than 50 voting stockholders, only those stockholders need be considered who are officers or directors or who directly or indirectly own 1 percent or more of the outstanding voting stock.

NOTE 4.—In applying the provisions of paragraphs (a)(1), (a)(2), and (c) of this section to the stockholders of a corporation which has more than 50 voting stockholders, an investment company as defined in 15 U.S.C. 80a-3 need be considered only if it directly or indirectly owns 5 percent or more of the outstanding voting stock or if officers or directors of the corporation are representatives of the investment company. *Provided, however,* That the investment company exercises no control over the management or policies of the corporation. Holdings by investment companies under common management shall be aggregated.

NOTE 5.—In applying the provisions of paragraphs (a), (b), and (c) of this section to the stockholders of a corporation which has more than 50 voting stockholders, a bank holding stock through its trust department in trust accounts or an insurance company need be considered only if such bank or insurance company directly or indirectly owns 5 percent or more of the outstanding voting stock or if officers or directors of the corporation are representatives of the bank or insurance company. *Provided, however,* That the bank or insurance company exercise no control over the management or policies of the corporation. Holdings by banks or insurance companies shall be aggregated if the banks or insurance companies have any right to determine how the stock will be voted.

NOTE 6.—In calculating the percentage of ownership of voting stock under the provisions of Notes 4 and 5, if an investment company, bank or insurance company, directly or indirectly owns voting stock in a company which in turn directly or indirectly owns 50 percent or more of the voting stock of a corporate broadcast licensee or corporate daily newspaper, the investment company, bank or insurance company shall be considered to own the same percentage of outstanding shares of the corporate broadcast station licensee or corporate daily newspaper as it owns of outstanding voting shares of the company standing between it and the licensee corporation or corporate daily newspaper. If the intermediate company owns less than 50 percent of the voting stock of a corporate broadcast station licensee or corporate daily newspaper, the holding of the investment company, bank or insurance company need not be considered under the 5-percent rule, but officers or directors of the licensee corporation or of the corporate daily newspaper who are representatives of the intermediate company shall be deemed to be representatives of the investment company, bank or insurance company if the investment company, bank or insurance company owns 5 percent or more of the intermediate company.

NOTE 7.—In cases where record and beneficial ownership of voting stock of a corporate broadcast station licensee or corporate daily newspaper which has more than 50 voting stockholders are not identical, e.g., bank nominees holding stock as record owners for the benefit of mutual funds, brokerage houses holding stock in street names for the benefit of customers, trusts holding stock as record owners for the benefit

of designated parties, and insurance companies holding stock, the party having the right to determine how the stock will be voted will be considered to own it for the purposes of these rules.

NOTE 8.—Paragraph (a)(1) of this section will not be applied so as to require divestiture, by any licensee, of existing facilities. Said paragraph will not apply to applications for assignment of license or transfer of control filed in accordance with § 73.3540(d) or § 73.3541(b), or to applications for assignment of license or transfer of control to heirs or legatees by will or intestacy if no new or increased overlap would be created between commonly owned, operated or controlled television broadcast stations and if no new encompassment of communities proscribed in paragraph (a)(1) of this section as to commonly owned, operated, or controlled television broadcast stations and standard or FM broadcast stations or daily newspapers would result. Said paragraph will apply to all applications for new stations, to all other applications for assignment or transfer, and to all applications for major changes in existing stations except major changes that will result in overlap of contours of television broadcast stations with each other no greater than already existing. (The resulting areas of overlap of contours of television broadcast stations with each other in such major change cases may consist partly or entirely of new terrain. However, if the population in the resulting overlap areas substantially exceeds that in the previously existing overlap areas, the Commission will not grant the application if it finds that to do so would be against the public interest, convenience, or necessity.) Paragraph (a)(1) of this section will not apply to major changes in UHF television broadcast stations authorized as of September 30, 1964, which will result in Grade B overlap with another television broadcast station that was commonly owned, operated, or controlled as of September 30, 1964; or to any application concerning a UHF television broadcast station which would result in the Grade A contour of the UHF station encompassing the entire community of license of a commonly owned, operated, or controlled AM or FM broadcast station or which would result in the entire community of license of such UHF station being encompassed by the 2 mV/m or 1 mV/m contours of such AM or FM broadcast stations, respectively. Such UHF overlap or community encompassment cases will be handled on a case-by-case basis in order to determine whether common ownership, operation, or control of the stations in question would be in the public interest.

Commonly owned, operated, or controlled broadcast stations, with overlapping contours or with community-encompassing contours prohibited by paragraph (a)(1) of this section may not be assigned or transferred to a single person, group, or entity, except as provided above in this note. If a commonly owned, operated or controlled television broadcast station and daily newspaper fall within the encompassing proscription of subparagraph (a)(1) of this section, the station may not be assigned to a single person, group, or entity if the newspaper is being simultaneously sold to such single person, group or entity.

NOTE 9.—Paragraph (a)(1) of this section will not be applied to cases involving television stations which are primarily "satellite" operations. Such cases will be considered on a case-by-case basis in order to determine whether common ownership, operation or control of the stations in question would be in the public interest. Whether or not a particular television broadcast station which does not present a substantial amount of locally originated programming is primarily a "satellite" operation will be determined on the facts of the particular case. An authorized and operating "satellite" television station the Grade B contour of which overlaps that of a commonly owned, operated, or controlled "non-satellite"

parent television broadcast station, or the Grade A contour of which completely encompasses the community of publication of a commonly owned, operated or controlled daily newspaper or the community of license of a commonly owned, operated or controlled AM or FM broadcast station, or the community of license of which is completely encompassed by the 2 mV/m contour of such a standard broadcast station or the 1 mV/m contour of such an FM station may subsequently become a "non-satellite" station with local studios and locally originated programming. However, such commonly owned, operated, or controlled "non-satellite" television stations with Grade B overlap or such commonly owned, operated, or controlled non-satellite television stations and standard or FM stations with the aforementioned community encompassment, may not be transferred or assigned to a single person, group, or entity except as provided in Note 8. Nor shall any application for assignment or transfer concerning such non-satellite stations be granted if the assignment or transfer would be to the same person, group or entity to which the commonly owned, operated or controlled newspaper is proposed to be transferred, except as provided in Note 8.

NOTE 10.—For the purposes of this section, a daily newspaper is one which is published four or more days per week, which is in the English language and which is circulated generally in the community of publication. A college newspaper is not considered as being circulated generally.

NOTE 11.—For the purposes of the three station regional concentration provision of this section, (a) application raising a regional concentration of control issue which involves one or more UHF television stations will be treated on a case-by-case basis, consistent with the precedents of UHF determinations made under the one-to-a-market proscriptions of this section, and (b) AM and FM broadcast stations licensed to communities which are within 15 miles (city reference point to reference point) and/or within the same urbanized area (as mapped by the U.S. Bureau of the Census), will be considered as a combination and counted as one station.

【§ 73.636 (a) (3) added eff. 4-30-80; III(80)-1】

#### § 73.637 Alternate main transmitters.

See § 73.1665.

#### § 73.638 Auxiliary transmitter.

See § 73.1670.

#### § 73.639 Modification of transmission systems.

Licensees of TV stations must observe the following procedures for making changes in authorized station transmitting systems.

(a) No changes shall be made:

(1) That would result in emission of signals outside of the authorized channel exceeding that which is permitted under § 73.687(i)(1).

(2) That would result in the external performance characteristic being in disagreement with that prescribed in §§ 73.682 and 73.687.

(b) The following modifications may be made only upon specific authority of the FCC. Application to make such changes shall be filed on FCC Form 301 (FCC Form 340 for noncommercial educational stations.)

(1) Installation of a main transmitter which is not included on the FCC's "radio equipment list" as type accepted for broadcast use.

(2) Modification of an existing transmitter which would affect its power rating or modify any of the performance characteristics which are required for type acceptance.

(3) Change in the location or the overall height of the antenna supporting structure.

(4) Change in the height above ground of the antenna center of radiation exceeding  $\pm 2$  meters from that shown on the station authorization.

(5) Change in the effective radiated power of the station in the horizontal plane or in the directional radiation characteristics of the antenna.

(6) Change in an antenna system which is mounted on an AM station antenna or which could possibly affect the operation of any AM directional antenna system.

(c) The following modifications may be made and operation commenced without prior authorization from the FCC, provided that the modifications would not possibly affect the operation of any co-located or nearby AM station. An application for license modification filed on FCC Form 302 (FCC Form 341 for noncommercial educational stations) must be filed within 10 days following completion of the changes. Equipment performance measurements are not required for applications covering changes described in (1) and (2) below.

(1) Replacement of a non-directional antenna with one of the same or different type or number of bays, provided that the height above ground of the center of radiation is within  $\pm 2$  meters of that specified in the station authorization, there is no change in the horizontal effective radiated power, and there is no increase in the radiation at any angle below the horizon in any direction.

(2) Installation of a transmission line with one of a different type or length which requires change in the transmitter output power to maintain the licensed effective radiated power.

(3) Installation of harmonic filters, sideband filters or diplexers of a different type which requires a change in the transmitter output power to maintain the licensed effective radiated power.

(d) The following changes in the transmission system equipment may be made without prior authorization from or notification to the FCC. Equipment performance measurements must be made within 10 days after completing the modifications.

(1) Installation of a new transmitter which is included on the FCC's "radio equipment list" as type accepted for broadcast use. (See § 73.1665.)

(2) Replacement of the carrier frequency generator of the transmitter with one of a different type that has been demonstrated to the FCC to be compatible with the transmitter in use.

(3) Replacement of the FM exciter unit of the aural transmitter with one that has been acceptable for TV station use through the FCC's type acceptance procedures and that has been demonstrated compatible with the transmitter in use.

#### § 73.640 Acceptability of broadcast transmitters for licensing.

See § 73.1660.

#### OVER-THE-AIR SUBSCRIPTION TELEVISION OPERATIONS

##### § 73.641 Subscription TV definitions.

(a) *Subscription television.* A system whereby subscription television broadcast programs are transmitted and received.

(b) *Subscription television broadcast program.* A television broadcast program intended to be received in intelligible form by members of the public only for a fee or charge.

##### § 73.642 Subscription TV licensing policies.

(a) Subscription television service may be provided only upon specific authorization therefor by the Commission. Such authorization will be issued only to:

(1) The licensee of a commercial television broadcast station;

(2) The holder of a construction permit for a new commercial television broadcast station; or

(3) An applicant for a construction permit for a new commercial television broadcast station: *Provided, however,* That such authorization will not be issued prior to issuance of the construction permit for the new station. Moreover, such an authorization will be issued only for a station the principal community of which is located entirely within the Grade A contours of five or more commercial television broadcast stations (including the station of the applicant), whether the principal community each station is authorized to serve is the same as that of the applicant, or is a nearby community. No such authorization will be granted unless, not counting the station of the applicant, at least four of the stations which include the community of the applicant within their Grade A contours are operating nonsubscription stations.

(b) Application for such authorizations shall be made in the manner and form prescribed by the Commission. If the Commission, upon consideration of such application finds that the public interest, convenience and necessity would be served by the granting thereof, it will grant such application. In the event it is unable to make such a finding, the Commission will then formally designate the application for subscription television authorization for hearing and proceed pursuant to the provisions of section 309(e) of the

Communications Act and the Commission's rules and regulations applicable thereto. The Commission may impose such conditions upon the grant as may be appropriate.

(c) Holders of subscription television authorizations shall complete construction of subscription television transmitting facilities within a period of 18 months after issuance of the authorization. The holder of a subscription television authorization shall file a report in the ninth month after the grant of the authorization setting forth the progress made toward building the subscription television facility. During the process of construction of the subscription television facilities, the holder of the authorization, after notifying the Commission and the Engineer in Charge of the radio district in which the station is located, may, without further authority of the Commission, conduct equipment tests for the purpose of such adjustments and measurements as may be necessary to assure compliance with the terms of the authorization, the technical provisions of the application therefor, and the rules and regulations. The Commission may notify the holder of the authorization not to conduct tests if such tests appear to be contrary to the public interest, convenience, and necessity. Upon completion of the construction, the holder of the authorization shall submit a detailed showing that compliance with the terms of the authorization, the technical provisions of the application therefor, and the rules and regulations has been achieved. No subscription television operation shall commence until requirements of this paragraph have been fulfilled and operation has been specifically authorized by the Commission.

(d) A subscription television authorization will not be issued or renewed for a period longer than the regular license period of the applicant's television broadcast authorization. Renewals of such authorizations will usually be considered together with renewals of the regular station authorizations.

(e) No subscription television authorization or renewal thereof shall be granted to a party having any contract, arrangement, or understanding, expressed or implied, which :

(1) Prevents or hinders it from rejecting or refusing any subscription television broadcast program which it reasonably believes to be unsatisfactory or unsuitable or contrary to the public interest; or substituting a subscription or conventional program which in its opinion is of greater local or national importance; or

(2) Delegates to any other person the right to schedule the hours of transmission of subscription programs: *Provided, however*, That this rule shall not prevent a licensee, permittee, or applicant from entering into an agreement or arrangement whereby it agrees to schedule a specific subscription television

broadcast program at a specific time or to schedule a specific number of hours of subscription programs during the broadcast day (or segments thereof) or week subject to Commission approval; or

(3) Prevents or hinders it from, or penalizes it for, making a free choice of subscription programs, whatever their source: *Provided, however*, That upon making a satisfactory showing to the Commission that the public interest would be served by permitting the licensee, permittee, or applicant to enter into an agreement or arrangement whereby it agrees to obtain all or a specified portion of its programming from one or more sources, this rule may be waived; or

(4) Deprives it of the right of ultimate decision concerning the maximum amount of any subscription program charge or fee.

(f) No subscription television authorization or renewal thereof shall be granted to a party having any contract, arrangement, or understanding, expressed or implied, with other parties the provisions of which do not comply with the following policies of the Commission :

(1) Unless a satisfactory signal is unavailable at the location where service is desired, subscription television service shall be provided to all persons desiring it within the Grade A contour of the nonsubscription television service provided by the station broadcasting subscription programs: *Provided, however*, That geographic or other reasonable patterns of installation for new subscription services shall be permitted: *And provided further*, That, for good cause, service may be terminated.

(2) Charges, terms and conditions of service to subscribers shall be applied uniformly: *Provided, however*, That subscribers may be divided into reasonable classifications approved by the Commission, and the imposition of different sets of terms and conditions may be applied to subscribers in different classifications: *And provided further*, That within such classifications deposits to assure payment may, for good cause, be required of some subscribers and not of others; and, also for good cause, if a subscription system generally uses a credit-type decoder cash operated decoders may be installed for some subscribers.

(3) Subscription television decoders shall be leased, and not sold, to subscribers.

(g) All applications for subscription television authorization or renewal shall set forth, in such detail as the Commission may require, the terms of agreements and arrangements the applicant has or intends to have with other parties concerning the supplying of subscription television programs, including specifically any provision that such programs shall be presented at a particular time or during a certain number of hours during the day (or segments thereof) or week, any

arrangement or understanding which might hinder or prevent the presentation of programs from different sources, or penalize the applicant for so doing, and, as to any arrangement or understanding with a party other than the producer of the program, any other arrangement or understanding of which the applicant has knowledge, between such other party and third parties, which prevents or hinders such other party from obtaining programs from different sources. The applicant shall use due diligence to ascertain the existence and nature of arrangements to which it is not a party.

#### § 73.643 Subscription TV operating requirements.

(a) Any television broadcast station licensee or permittee authorized to broadcast subscription programs shall broadcast in addition to its subscription broadcasts, at least the minimum hours of nonsubscription programming required by § 73.1740.

(b) Except as they may be otherwise waived by the Commission in authorizations issued hereunder, the rules and policies applicable to regular television broadcast stations are applicable to subscription television operations.

#### § 73.644 Subscription TV transmission systems.

(a) No subscription television authorization will be granted unless the technical system to be used has been approved in advance by the Commission. Such advance approval may be applied for and granted in accordance with the following procedure, subject to the conditions and limitations set forth:

(1) A separate request for each different technical system shall be made by the applicant in writing.

(2) The applicant shall certify that the application was prepared by him or at his direction and that the facts set forth are true and correct to the best of his knowledge and belief.

(3) The applicant shall identify the technical system by a name or type number and shall define the system in terms of its technical characteristics; a functional block diagram shall be included. In addition, a complete description of the encoded transmitted signal and the encoding and decoding equipment used by the applicant shall be supplied. The description of this equipment shall include circuit diagrams and photographs.

(4) Preliminary test data shall be submitted to show system capability with regard to compliance with the criteria set forth in paragraph (b) of this section.

(5) The applicant shall supply any additional information and test data requested by the Commission, to show to its satisfaction that the criteria set forth in paragraph (b) of this section are met.

(6) The information submitted by the applicant may be subject to check by field tests conducted without expense to the Commission or by tests by Commission personnel, if deemed necessary by the Commission.

(7) No technical system will be deemed approved unless and until the Commission has notified the applicant in writing of the approval. Such notification of approval will be by letter to the applicant.

(8) Approval by the Commission is limited to a determination that the particular technical system (the scheme for encoding and decoding the subscription television signal) is capable of meeting the criteria set forth in paragraph (b) of this section.

(9) The Commission shall maintain a listing of approved technical systems.

**NOTE:** The procedure for advance approval of technical systems contained in this paragraph is effective in the interim pending amendment of Part 2 of this chapter to provide for "system type acceptance."

(b) The criteria for approval of subscription television technical systems by the Commission are as follows:

(1) The technical system shall be capable of operating by delivering a suitable signal to the antenna input terminals of receivers designed for reception of signals meeting the technical standards for color or monochrome television transmission and accompanying aural signal as set forth in this Part. For the purpose of this requirement, a "suitable signal" shall be one which, except for distortion or attenuation occurring in the transmitting antenna, receiving antenna or the propagation medium, complies with all technical standards for color or monochrome transmission and accompanying aural signal set forth in this Part.

(2) Spectral energy in transmission shall not exceed limitations set forth in § 73.687(i).

(3) No increase in width of the television broadcast channel (6 MHz) shall be required.

(4) The technical system shall enable stations transmitting subscription television programs to produce visual and aural signal coverage and receive program quality not significantly inferior, in the judgment of the Commission, to that produced by stations using the normal monochrome or color transmission standards set forth in this Part without employing additional effective radiated power for either the visual or aural signals.

(5) The encoded visual and aural programs shall be recoverable without perceptible degradation as compared to the same programs transmitted in accordance with Commission monochrome and color standards.

(6) Internal modifications to subscribers' receivers shall not be required.

(7) Interference to reception of conventional television and subscription television programs, co-channel and adjacent channel, monochrome and color shall not significantly, in the judgment of the Commission, exceed that occurring from conventional television broadcasting conducted in compliance with the technical standards set forth in this Part.

(8) Reception of subscription television programs shall not be, in the judgment of the Commission significantly more susceptible to interference of any kind than reception of conventional television programs transmitted in accordance with the technical standards set forth in this Part.

#### GENERAL OPERATING REQUIREMENTS

##### § 73.651 Time of operation.

See §§ 73.653, 73.1705 and 73.1740.

##### § 73.652 Station identification.

See § 73.1201.

##### § 73.653 Operation of TV aural and visual transmitters.

(a) During the operating hours of a TV station, between its regularly scheduled sign-on and sign-off times, the aural and visual transmitters shall not be operated separately, or to present different or unrelated program material, except in the following cases:

(1) Emergency fills due to either visual or aural equipment failures leaving the licensee with only the audio or video programming to announce the equipment failures to the audience;

(2) For equipment tests or experimentation pursuant to § 73.1510 (Experimental authorizations) and § 73.1520 (Operation for tests and maintenance).

(b) During the normal non-operating hours of a TV station between sign-off of one broadcast day and sign-on of the next but, in any event, no earlier than 12 Midnight nor later than 6 A.M., the aural and visual transmitters shall, if the licensee chooses to broadcast, be operated as follows:

(1) As described in paragraphs (a) (1) and (2) of this section, or

(2) Separately, with either (i) no aural transmissions, or (ii) aural transmissions of non-related, different program material.

(3) All rules and all policies of the FCC apply to the operation of stations presenting programs described in this paragraph (b) of this section.

(c) Stations signing on after 6 A.M. may present visual transmissions of a test pattern, still pictures or slides, with aural transmission consisting of a single tone, or series of variable tones, a presentation of the upcoming program schedule, aural news broadcasts, or music. This type program material shall not exceed 15 minutes immediately prior to the start of the station's scheduled sign-on.

【§ 73.653(a) and (b) revised; (b) (1), (b) (2), (b) (3), and (c) added; Eff. 10-27-80; III(80)-1】

##### § 73.654 Sponsorship identification.

See § 73.1212.

##### § 73.656 Lotteries.

See § 73.1211.

##### § 73.657 Broadcasts by candidates for public office.

See § 73.1940.

##### § 73.658 Affiliation agreements and network program practices; territorial exclusivity in non-network program arrangements.

(a) *Exclusive affiliation of station.* No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization under which the station is prevented or hindered from, or penalized for, broadcasting the programs of any other network organization. (The term "network organization" as used in this section includes national and regional network organizations. See ch. VII, J, of Report on Chain Broadcasting.)

(b) *Territorial exclusivity.* No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which prevents or hinders another broadcast station located in the same community from broadcasting the network's programs not taken by the former station, or which prevents or hinders another broadcast station located in a different community from broadcasting any program of the network organization. This section shall not be construed to prohibit any contract, arrangement, or understanding between a station and a network organization pursuant to which the station is granted the first call in its community upon the programs of the network organization. As employed in this paragraph, the term "community" is defined as the community specified in the instrument of authorization as the location of the station.

(c) *Term of affiliation.* No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which provides, by original terms, provisions for renewal, or otherwise for the affiliation of the station with the network organization for a period longer than 2 years: *Provided*, That a contract, arrangement, or understanding for a period up to 2 years may be entered into within 6 months prior to the commencement of such period.

(d) *Station commitment of broadcast time.* No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with any network organization, which provides for optioning of the station's time to the network organization, or which has the same restraining effect as time optioning. As used in this section, time optioning is any contract, arrangement, or understanding, express or implied, between a station and a network organization which prevents or hinders the station from scheduling programs before the network agrees to utilize the time during which such programs are scheduled, or which requires the station to clear time already scheduled



when the network organization seeks to utilize the time.

(e) *Right to reject programs.* No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which, with respect to programs offered or already contracted for pursuant to an affiliation contract, prevents or hinders the station from (1) rejecting or refusing network programs which the station reasonably believes to be unsatisfactory or unsuitable or contrary to the public interest, or (2) substituting a program which, in the station's opinion, is of greater local or national importance.

(f) *Network ownership of stations.* No license shall be granted to a network organization, or to any person directly or indirectly controlled by or under common control of a network organization, for a television broadcast station in any locality where the existing television broadcast stations are so few or of such unequal desirability (in terms of coverage, power, frequency, or other related matters) that competition would be substantially restrained by such licensing. (The word "control" as used in this section, is not limited to full control but includes such a measure of control as would substantially affect the availability of the station to other networks.)

(g) *Dual network operation.* No license shall be issued to a television broadcast station affiliated with a network organization which maintains more than one network of television broadcast stations: *Provided*, That this section shall not be applicable if such networks are not operated simultaneously, or if there is no substantial overlap in the territory served by the group of stations comprising each such network.

(h) *Control by networks of station rates.* No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization under which the station is prevented or hindered from, or penalized for, fixing or altering its rates for the sale of broadcast time for other than the network's programs.

(i) No license shall be granted to a television broadcast station which is represented for the sale of non-network time by a network organization or by an organization directly or indirectly controlled by or under common control with a network organization, if the station has any contract, arrangement or understanding, express or implied, which provides for the affiliation of the station with such network organization: *Provided, however*, That this rule shall not be applicable to stations licensed to a network organization or to a subsidiary of a network organization.

(j) *Network syndication and program practices.* (1) Except as provided in subparagraph (3) of this paragraph, no television network shall:

(i) After June 1, 1973, sell, license, or distribute television programs to television station licensees within the United States for nonnetwork television exhibition or otherwise engage in the business commonly known as "syndication" within the United

States; or sell, license, or distribute television programs of which it is not the sole producer of exhibition outside the United States; or reserve any option or right to share in revenues or profits in connection with such domestic and/or foreign sale, license, or distribution; or

(ii) After August 1, 1972, acquire any financial or proprietary right or interest in the exhibition, distribution, or other commercial use of any television program produced wholly or in part by a person other than such television network, except the license or other exclusive right to network exhibition within the United States and on foreign stations regularly included within such television network: *Provided*, That if such network does not timely avail itself of such license or other exclusive right to network exhibition within the United States, the grantor or such license or right to network exhibition may, upon making a timely offer reasonably to compensate the network, reacquire such license or other exclusive right to exhibition of the program.

(2) Nothing contained in subparagraphs (1) and (2) of this paragraph shall prevent any television network from selling or distributing programs of which it is the sole producer for television exhibition outside the United States, or from selling or otherwise disposing of any program rights not acquired from another person, including the right to distribute programs for nonnetwork exhibition (as in syndication) within the United States as long as it does not itself engage in such distribution within the United States or retain the right to share the revenues or profits therefrom.

(3) Nothing contained in this paragraph shall be construed to include any television network formed for the purpose of producing, distributing, or syndicating program materials for educational, noncommercial, or public broadcasting exhibition or uses.

(4) For the purposes of this paragraph and paragraph (k) of this Section the term network means any person, entity, or corporation which offers an interconnected program service on a regular basis for 15 or more hours per week to at least 25 affiliated television licensees in 10 or more States; and/or any person, entity, or corporation controlling, controlled by or under common control with such person, entity, or corporation.

(k) Effective September 8, 1975, commercial television stations owned by or affiliated with a national television network in the 50 largest television markets (see Note 1 to this paragraph) shall devote, during the four hours of prime time (7-11 p.m. e.t. and p.t., 6-10 p.m. c.t. and m.t.), no more than three hours to the presentation of programs from a national network, programs formerly on a national network, (off-network programs) other than feature films, or, on Saturdays, feature films; *Provided, however*, That the following categories of programs need not be counted toward the three-hour limitation:

(1) On nights other than Saturdays, network or off-network programs designed for children, public affairs programs or documentary programs (see Note 2 to this paragraph for definitions).

(2) Special news programs dealing with fast-breaking news events, on-the-spot coverage of news events or other material related to such coverage, and political broadcasts by or on behalf of legally qualified candidates for public office.

(3) Regular network news broadcasts up to a half hour, when immediately adjacent to a full hour of continuous locally produced news or locally produced public affairs programming.

(4) Runovers of live network broadcasts of sporting events, where the event has been reasonably scheduled to conclude before prime time or occupy only a certain amount of prime time, but the event has gone beyond its expected duration due to circumstances not reasonably foreseeable by the networks or under their control. This exemption does not apply to post-game material.

(5) In the case of stations in the Mountain and Pacific time zones, on evenings when network prime-time programming consists of a sports event or other program broadcast live and simultaneously throughout the contiguous 48 states, such stations may assume that the network's schedule that evening occupies no more of prime time in these time zones than it does in the Eastern and Central time zones.

(6) Network broadcasts of an international sports event (such as the Olympic Games), New Year's Day college football game, or any other network programming of a special nature other than motion pictures or other sports events, when the network devotes all of its time on the same evening to the same programming, except brief incidental fill material.

NOTE 1. The top 50 markets to which this paragraph applies are the 50 largest markets in terms of average prime time audience for all stations in the market. For broadcast years before fall 1980, the 50 markets are the largest 50 as listed in the Arbitron publication "Television Markets and Rankings Guide," generally published in November, which will apply for the broadcast year starting the following fall, except that, for 1978-79, "Syracuse-Elmira" will not be included and the Salt Lake City market will be included. For broadcast years starting in the fall of 1980 and thereafter, the 50 largest markets to which this paragraph applies will be determined at 3-year intervals, on the basis of the average of two Arbitron February-March audience surveys occurring roughly 2½ years and roughly 3¼ years before the start of the 3-year period. The 50 markets to which this paragraph will apply for 3 years from fall 1980 to fall 1983 will be determined by an average of the prime time audience figures (all market stations combined) contained in the reports of Arbitron February/March 1977 and February/March 1978 audience surveys. Shortly after the results of the 1978 survey are available the Commission will issue a list of the 50 largest markets to which this paragraph will apply from fall 1980 to fall 1983. The same procedure will take place, on the basis of February/March 1980 and 1981 surveys, for the three-year period from fall 1983 to fall 1986.

NOTE 2. As used in this paragraph, the term "programs designed for children" means programs primarily designed for children aged 2 through 12. The term "documentary programs" means programs which are nonfictional and educational or informational, but not including programs where the information is used as part of a contest among participants in the program, and not including programs relating to the visual entertainment arts (stage, motion pictures or television) where more than 50% of the program is devoted to the presentation of entertainment material itself. The term "public affairs programs" means talks, commentaries, discussions, speeches, editorials, political programs, documentaries, forums, panels, roundtables and similar programs primarily concerning local, national, and international public affairs.

(1) *Broadcast of the programs of more than one network.* The provisions of this paragraph govern and limit the extent to which, after October 1, 1971, commercial television stations in the 50 States of the United States, which are regular affiliates of one of the three national television networks, may broadcast programs of another network, in markets where there are two such affiliated stations and one or more operational VHF or UHF stations having reasonably comparable facilities which are not regular affiliates of any network. Whether or not the stations in a particular market come within the provisions of this paragraph is determined by whether, as of July 1 of each year with respect to programs beginning October 1, or as of January 1 of each year with respect to programs beginning April 1, there are in the market the stations specified in the last sentence.

(1) *Definitions.* As used in this paragraph, the following terms have the meanings given:

(i) "Station" means a commercial television station in the 50 States of the United States.

(ii) "Operational station" means a station authorized and operating as of June 10 (with respect to programs beginning October 1) or as of December 10 (with respect to programs beginning April 1), or a station authorized and which gives notice to the Commission by such June 10 or December 10 date that it will be on the air by such October 1 or April 1 date (including request for program test authority if none has previously been given), and commits itself to remain on the air for 6 months after such October 1 or April 1 date. Such notice shall be received at the Commission by the June 10 or December 10 date mentioned, and shall show that copies thereof have been sent to the three national networks and to the licensees of all operating television stations in the market.

(iii) "Affiliated station" means a station having a regular affiliation with one of the three national television networks, under which it serves as that network's primary outlet for the presentation of its programs in a market. It includes any arrangement under which the network looks primarily to this station rather than other stations for the presentation of its programs and the station chiefly presents the programs of this network rather than another network.

(iv) "Unaffiliated station" means a station not having an affiliation arrangement as defined in this subparagraph with a national television network, even though it may have other types of agreements or per-program arrangements with it.

(v) "Network" means a national organization distributing programs for a substantial part of each broadcast day to television stations in all parts of the United States, generally via interconnection facilities.

(vi) "Unaffiliated network" means a network not having an affiliated station (as defined in this paragraph) in a particular market, even though it may have other types of agreements or per-program arrangements.

(vii) "Market" means the television markets of the United States, and the stations in them, as identified in the latest publication of American Research Bureau (ARB), together with any stations which have since become operational in the same communities.

(viii) "Evening programing" means programing (regular programs or "specials") starting and concluding on a network between the hours of 7:30 p.m. and 11 p.m. local time (except 6:30 p.m. and 10 p.m. in the Central time zone), plus all programs other than regular newscasts starting on the network between 7 and 7:30 p.m. local time (6 and 6:30 p.m. local time in the Central time zone). It does not include portions broadcast after 7 p.m. of programs starting earlier, or portions broadcast after 11 p.m. of programs starting earlier.

(ix) "Specials" means programs not carried on the network at least as often as once a week. It includes both programs scheduled well in advance and those scheduled very shortly before broadcast on the network.

(x) "Reasonably comparable facilities" means station transmitting facilities (effective radiated power and effective antenna height above average terrain) such that the station's Grade B coverage area is at least two-thirds as large (in square miles) as the smallest of the market affiliated stations' Grade B coverage areas. Where one or both of the affiliates is licensed to a city different from that of the unaffiliated station, the term "reasonably comparable facilities" also includes the requirement that the unaffiliated station must put a predicted Grade A or better signal over all of the city of license of the other regular (nonsatellite) station(s), except that where one of the affiliated stations is licensed to the same city as the unaffiliated station, and puts a Grade B but not a Grade A signal over the other city of license, the unaffiliated station will be considered as having reasonably comparable facilities if it too puts a predicted Grade B signal over all of the other city of license.

(2) *Taking programs from unaffiliated networks.* No affiliated station, in a market covered by this paragraph, shall take and broadcast, from an unaffiliated network, any programing of the times and types specified in this subparagraph, unless the conditions specified have first been met:

(i) Any evening programing (as defined in this paragraph), unless and until the entire schedule of

such programs has been offered by the unaffiliated network to the unaffiliated station as provided in subparagraph (4) of this paragraph, and the unaffiliated station has either accepted 15 hours per week of such programs, plus additional "special" hours when part of the "special" is included in the 15 hours, or has accepted a lesser amount and indicated that it does not wish to carry any more. Such acceptance shall be governed by the provisions of subparagraph (4) of this paragraph.

(ii) Any programing beginning on the network between 12 noon and 7 p.m. on Saturdays, Sundays, and holidays, and consisting of sports events (including without limitation, college football and basketball, professional football, baseball, ice hockey, golf, tennis, horseracing and autoracing), unless and until the program has first been offered to the unaffiliated station and that station has indicated that it does not wish to accept it.

(iii) Any programing broadcast after 11 p.m. local time (except 10 p.m. local time in the Central time zone) which is a continuation of programs starting earlier and carried by the unaffiliated station; or any material broadcast after 7 p.m. (6 p.m. in the Central time zone) which is a continuation of sports programs beginning earlier and carried by the unaffiliated station.

(iv) Any program presented in the same week by the unaffiliated station.

(3) *Carriage of programs of a network which has an affiliate.* No affiliated station in a market covered by this paragraph shall broadcast, from another network which has an affiliated station in the market, any evening programing or Saturday, Sunday, or holiday sports programing, unless such programing has first been offered to the unaffiliated station in the market and the latter has indicated that it does not wish to carry it.

(4) *Offer and acceptance.* (1) The "offer" by a network referred to in this paragraph means an offer to the unaffiliated station of the programs for broadcast. Programs so offered cannot be withdrawn by the network until the following April 1 or October 1, unless the station does not in fact broadcast the program as accepted, in which case the provisions of subdivision (ii) of this subparagraph shall apply, or unless the program is canceled on the network, in which case the replacement or substitute program shall be offered

to the station as a new program under subparagraphs (2) or (3) of this paragraph. If a program accepted by the unaffiliated station is shifted in time, the station may exercise its right of "first call" either with respect to the program at its new time, or the previous time segment, at its option.

(ii) The acceptance referred to in subparagraphs (2) and (3) of this paragraph means that the unaffiliated station agrees to broadcast the program accepted, at its live network time or a delayed time acceptable to the network, unless in its judgment the program is not in the public interest or it wishes to substitute a local, or other live, program for it. The provisions of paragraph (a) of this section, prohibiting agreements which hinder the presentation of the programs of other networks, shall not apply to material covered by this paragraph. If a program is not presented in a particular week live or at a delayed time acceptable to the network, the network may place this particular broadcast of the program on another station; and if this occurs more than 4 times in any 13-week period the network may withdraw the program from the station without obligation to offer it any additional programing. The unaffiliated station is free to seek and obtain other terms of acceptance from the network; but the offer of programing by the network on the foregoing terms satisfies its obligations under this paragraph.

(iii) The offer by the network shall, to the extent possible, be on or before July 15 with respect to programs beginning in the fall season, and by January 15 with respect to programs presented after April 1, or otherwise as soon as possible. The unaffiliated station's acceptance or indication of nonacceptance shall be within 2 weeks after the date of the offer; where any negotiations between the network and the station concerning particular programs are involved, programs not accepted within 30 days of the date of the offer shall be deemed not accepted.

**NOTE 1:** If there are in a particular market two affiliated stations and two (or more) operational unaffiliated stations with reasonably comparable facilities the provisions of this paragraph (1) shall require an offer of programing to each; but the 15-hour-per-week "first call" provision applies to the total programing taken by all such stations.

**NOTE 2:** The provisions of this paragraph (1) do not apply to a market in which there are two VHF affiliated U.S. stations, and a foreign VHF station to which a national U.S. television network transmits programs pursuant to authority granted under section 325 of the Communications Act of 1934, as amended, and which serves as that network's primary affiliate in the market.

(m) *Territorial exclusivity in non-network arrangements.* No television station shall enter into any contract, arrangement or understanding, express or implied, with a non-network program producer, distributor, or supplier, or other person which prevents or hinders another television station located in a community over 35 miles away, as determined by the reference points contained in § 76.53 of this chapter (if reference points for a community are not listed in § 76.53, the location of the main post office will be used) from broadcasting any program purchased by the former station from such non-network program producer, distributor, supplier, or other person, except that a television station may secure exclusivity against a television station licensed to another designated community in a hyphenated market specified in the market listing as contained in § 76.51 of this chapter for those 100 markets listed, and for markets not listed in § 76.51 of this chapter, the listing as contained in the ARB Television Market Analysis for the most recent year at the time that the exclusivity contract, arrangement or understanding is complete under practices of the industry. As used in this subsection, the term "community" is defined as the community specified in the instrument of authorization as the location of the station.

**NOTE 1:** Contracts, arrangements, or understanding that are complete under the practices of the industry prior to August 7, 1973, will not be disturbed. Extensions or renewals of such agreements are not permitted because they would in effect be new agreements without competitive bidding. However, such agreements that were based on the broadcaster's advancing "seed money" for the production of a specific program or series that specify two time periods—a tryout period and period thereafter for general exhibition—may be extended or renewed as contemplated in the basic agreement.

(2) [Reserved]

**NOTE 3:** It is intended that the top 100 major television markets listed in § 76.51 of this chapter shall be used for the purposes of this rule and that the listing of the top 100 television markets appearing in the ARB Television Market Analysis shall not be used. The reference in this rule to the listing of markets in the ARB Television Market Analysis refers to hyphenated markets below the top-100 markets contained in the ARB Television Market Analysis. If a community is listed in a hyphenated market in § 76.51 and is also listed in one of the markets in the ARB listing, the listing in § 76.51 shall govern.

**NOTE 4:** The provisions of this paragraph apply only to U.S. commercial television broadcast stations in the 50 states, and not to stations in Puerto Rico or the Virgin Islands, foreign stations or noncommercial educational television or "public" television stations (either by way of restrictions on their exclusivity or on exclusivity against them).

**NOTE 5:** New stations authorized in any community of a hyphenated market listed in § 76.51 of this chapter or in any community of a hyphenated market listed in the ARB Television Market Analysis (for markets below the top-100 markets) are subject to the same rules as previously existing stations therein. New stations authorized in other communities are considered stations in separate markets unless and until § 76.51 is amended by Commission action, or the ARB listing is changed.

§ 73.659 Special rules relating to contracts providing for reservation of time upon sale of a station.

See § 73.1150.

§ 73.660 Station and operator licenses; posting of.

See § 73.1230.

§ 73.661 Operator requirements.

(a) Except as provided for in paragraphs (b), (c) and (d) of this section, one or more operators holding First-Class Radiotelephone Operator Licenses must be on duty at the place where the transmitting apparatus is located, where extension meters and monitoring devices for monitoring critical parameters of the transmitter are located as provided for in § 73.1550, or at an authorized remote control point established pursuant to the provisions of § 73.677; and shall be in actual charge thereof whenever the transmitter is delivering power to the transmitting antenna.

(1) The licensed operator on duty and in charge of the TV transmitter may, at the discretion of the licensee, be employed for other duties or for operation of another station or stations in accordance with the class of operator license held and the rules governing such other stations. However, such other duties must not impair or impede the required supervision of the TV broadcast transmitting system.

(2) The transmitter and required monitors and metering equipment, or the required extension meters and monitoring equipment or the controls and required monitoring metering equipment in an authorized remote control operation must be readily accessible to the licensed operator and located sufficiently close to the normal operating location that deviations for normal indications of required instruments can be observed from that location.

(b) The licensee of a TV station may employ persons holding any class of commercial radio operator license or permit for the routine duty operation of the transmitting system as defined in paragraph (c) of this section. In addition, the licensee must employ at least one

person holding a First-Class Radiotelephone Operator License either in full-time or whatever less than full-time employment the station licensee determines is necessary to keep the station's technical operation in compliance with the FCC rules and terms of the station authorization. If the licensee elects to employ operators holding any class of license or permit other than a First-Class Radiotelephone Operator License for the routine duty operation of the transmitting system, the licensee must comply with the following:

(1) One First-Class Radiotelephone operator shall be designated in writing as the chief operator who, together with the licensee, shall be responsible for the technical operation of the station. The licensee may also designate another first-class radiotelephone operator as assistant chief operator, who shall assume all responsibilities of the chief operator during periods of his absence. A copy of the designation must be posted with the license(s) of the designated operator(s).

(2) The station licensee shall vest such authority in, and afford such facilities to, the chief operator as may be necessary to insure that the chief operator's primary responsibility for the proper technical operation of the station may be discharged efficiently.

(3) At such time as the regularly designated chief operator is unavailable or unable to act as chief operator (e.g., vacations, sickness), and an assistant chief operator has not been designated, or, if designated, for any reason is unable to assume the duties of chief operator, the licensee must designate another first-class radiotelephone operator as acting chief operator on a temporary basis.

(4) The designated chief operator may serve as a routine duty transmitter operator at any station only to the extent that it does not interfere with the efficient discharge of his responsibilities as listed below.

(i) The inspection and maintenance of the transmitting system, including the antenna system and required monitoring equipment.

(ii) The accuracy and completeness of entries in the maintenance log.

(iii) The supervision and instruction of all other station operators in the performance of their technical duties.

(iv) A review of completed operating logs to determine whether technical operation of the station has been in accordance with the rules and terms of the

station authorization. After review, the chief operator shall sign the log and indicate the date and time of such review. If the review of the operator logs indicates technical operation of the station is in violation of the rules or terms of the station authorization, he shall promptly initiate corrective action. The review of each day's operating logs shall be made within 24 hours, except that, if the chief operator is not on duty during a given 24-hour period, the logs must be reviewed within 2 hours after his next appearance for duty. In any case, the time before review cannot exceed 72 hours.

(c) Subject to the conditions in paragraph (b) of this section, operators not holding First-Class Radiotelephone Operator Licenses may make adjustments only of external controls, as follows:

(1) Those necessary to turn the transmitter on and off;

(2) Those necessary to maintain the operating power within the prescribed limits;

(3) Those necessary to maintain the aural modulation levels within the prescribed limits;

(4) Those necessary to maintain the visual modulation and waveform within the prescribed limits.

(d) It is the responsibility of the station licensee to insure that each operator is fully instructed in the performance of all of the above adjustments as well as in other required duties, such as reading meters and making log entries. Printed step-by-step instructions for those adjustments which the lesser grade operator is permitted to make, and a tabulation or chart of upper and lower limiting values of parameters required to be observed and logged, shall be posted at the operating position. The emissions of the station must be terminated immediately whenever the transmitting system is observed operating beyond the posted parameters, or in any other manner inconsistent with the rules or the station authorization and the above adjustments are ineffective in correcting the condition of improper operation and a First-Class Radiotelephone operator is not present.

(e) At TV stations which elect to use less than First-Class Radiotelephone operators for routine duty operation, a complete inspection of the transmitting system and required monitoring equipment in use shall be made by an operator holding a First-Class Radiotelephone License at least one each calendar week. The interval between successive required inspections shall not be less than 5 days. This inspection

shall include such tests, adjustments, and repairs as may be necessary to insure operation in conformance with the provisions of this Subpart and the current station authorization.

(f) Procedures for licensees employing full-time first-class duty operators to temporarily employ persons holding lesser grade licenses, or to employ a temporary pro-tem chief operator when the designated chief operator is incapacitated or unavailable are given in § 73.3547.

【§ 73.661 (b) (3) revised, (f) added; Eff. 4-30-80; III (80)-1】

#### § 73.662 Antenna structure, marking & lighting.

See § 73.1213.

#### § 73.663 Determining operating power.

(a) The operating power of the visual transmitter of each TV station shall normally be determined by the direct method. The operating power of the aural transmitter may be determined by either the direct or indirect method.

(b) *Direct method, visual transmitter.* The direct method of power determination for a TV visual transmitter uses the indications of a calibrated transmission line meter (responsive to peak power) located at the RF output terminals of the transmitter. The indications of the calibrated meter are used to observe and maintain the authorized operating power of the visual transmitter. This meter must be calibrated by the licensee at intervals not exceeding 6 months and whenever there is any indication that the calibration is inaccurate or whenever any component in the metering circuit is repaired or replaced. The following calibration procedures are to be used:

(1) The transmission line meter is calibrated by measuring the average power at the output terminals of the transmitter, including any vestigial sideband and harmonic filters which may be used in normal operation. For this determination the average power output is measured while operating into a dummy load of substantially zero reactance and a resistance equal to the transmission line characteristic impedance. During this measurement the transmitter is to be modulated only by a standard synchronizing signal with blanking level set at 75% of peak amplitude as observed in an output waveform monitor, and with this blanketing level amplitude maintained throughout the time interval between synchronizing pulses.

(2) If electrical devices are used to determine the output power, such devices must permit determination of this power to within an accuracy of  $\pm 5\%$  of the power indicated by the full scale reading of the electrical indicating instrument of the device. If temperature and coolant flow indicating devices are used to determine the power output, such devices must permit determination of this power to within an accuracy of  $\pm 4\%$  of measured average power output. The peak power output is the power so measured in the dummy load multiplied by the factor 1.68. During this measurement the input voltage and current to the final radio frequency amplifier stage and the transmission line meter are to be read and compared with similar readings taken with the dummy load replaced by the antenna. These readings must be in substantial agreement.

(3) The meter must be calibrated with the transmitter operating at 80%, 100%, and 110% of the authorized power as often as may be necessary to insure compliance with the requirements of this paragraph and in any event at intervals of no more than 6 months. In cases where the transmitter is incapable of operating at 110% of the authorized power output, the calibration may be made at a power output between 100% and 110% of the authorized power output. However, where this is done, the output meter must be marked at the point of calibration of maximum power output, and the station will be deemed to be in violation of this rule if that power is exceeded. The upper and lower limits of permissible power deviation as determined by the prescribed calibration, must be shown upon the meter either by means of adjustable red markers incorporated in the meter or by red marks placed upon the meter scale or glass face. These markings must be checked and changed, if necessary, each time the meter is calibrated.

(c) *Direct method, aural transmitter.* The direct method of power determination for a TV aural transmitter uses the indications of a calibrated transmission line meter (responsive to relative voltage, current, or power) located at the RF output terminals of the transmitter. The indications of this calibrated meter are used to observe and maintain the authorized aural operating power of the station. This meter must be calibrated by the licensee at intervals not exceeding 6 months and whenever there is any indication that the calibration is inaccurate or whenever any component in the metering circuit is repaired or replaced. The following calibration procedures are to be used :

(1) The transmission line meter is calibrated by measuring the average power at the output terminals of the transmitter which includes any harmonic filters that may be used during operation. For this determination the output power is measured while operating into a dummy load of substantially zero reactance and a resistance equal to the transmission line characteristic impedance. The transmitter must be unmodulated during this measurement.

(2) If the electrical devices are used to determine the output power, such devices must permit determination of this power to within an accuracy of  $\pm 5\%$  of the power indicated by the full scale reading of the electrical indicating instrument of the device. If temperature and coolant flow indicating devices are used to determine the power output, such devices must permit determination of this power to within an accuracy of 4% of measured average power output. During this measurement the input voltage and current of the final radio-frequency amplifier stage and the transmission line meter are to be read and compared with similar readings taken with the dummy load replaced by the antenna. These readings must be in substantial agreement.

(3) The meter must be calibrated with the transmitter operating at 80%, 100%, and 110% of the authorized power as often as may be necessary to insure compliance with the requirements of this paragraph and in all cases at intervals of not more than 6 months. In cases where the transmitter is incapable of operating at 110% of the authorized power output, the calibration may be made at a power output between 100% and 110% of the authorized power output. However, where this is done, the output meter must be marked at the point of calibration of maximum power output, and the station will be deemed to be in violation of this rule if that power is exceeded. The upper and lower limits of permissible power deviation as determined by the prescribed calibration, must be shown upon the meter either by means of adjustable red markers incorporated in the meter or by red marks placed upon the meter scale or glass face. These markings must be checked and changed, if necessary, each time the meter is calibrated.

(d) *Indirect method, visual or aural transmitter.* The operating power is determined by the indirect method by applying an appropriate factor to the input power to the final radio-frequency amplifier stage of the transmitter using the following formula :



$$\text{Transmitter output power} = E_p \times I_p \times F$$

Where:

$E_p$  = DC input voltage of the final radio-frequency amplifier stage.

$I_p$  = DC input current of the final radio-frequency amplifier stage.

$F$  = Efficiency factor.

(1) If the above formula is not appropriate for the design of the transmitter final amplifier, use a formula specified by the transmitter manufacturer with other appropriate operating parameters.

(2) The value of the efficiency factor,  $F$  established for the authorized transmitter output power is to be used for maintaining the operating power, even though there may be some variation in  $F$  over the power operating range of the transmitter.

(3) The value of  $F$  is to be determined and a record kept thereof by one of the following procedures listed in order of preference:

(i) Using the most recent measurement data for calibration of the transmission line meter according to the procedures described in paragraph (c) of this Section or the most recent measurements made by the licensee to establish the value of  $F$ . In the case of composite transmitters or those in which the final amplifier stages have been modified pursuant to FCC approval, the licensee must furnish the FCC and also retain with the station records the measurement data used as a basis for determining the value  $F$ .

(ii) Using measurement data shown on the transmitter manufacturer's test data supplied to the licensee, provided that measurements were made at the authorized carrier frequency and transmitter output power.

(iii) Using the transmitter manufacturer's measurement data submitted to the FCC for type acceptance as shown in the instruction book supplied to the licensee.

§ 73.664 Broadcast of telephone conversations.

See § 73.1206.

§ 73.665 Station inspection.

See § 73.1225.

§ 73.666 Experimental operation.

See § 73.1510 and § 73.1520.

§ 73.667 Discontinuance of operation.

See § 73.1750.

§ 73.668 Frequency tolerance.

See § 73.1545.

§ 73.669 General requirements relating to logs.

See § 73.1800.

§ 73.670 Program logs.

See § 73.1810.

§ 73.671 Operating logs.

See § 73.1820.

§ 73.672 Maintenance logs.

See § 73.1830.

§ 73.673 Retention of logs.

See § 73.1840.

§ 73.674 Availability of logs and records.

See §§ 73.1225 and 73.1850.

§ 73.675 Operation during emergency.

See § 73.1250.

§ 73.676 Remote control operation.

(a) Television broadcast stations authorized to operate by remote control shall provide, as a minimum, the following telemetry, control, and test functions at the control point:

(1) Means for turning the transmitter on and off at will.

(2) Suitable instruments for indicating the operating parameters which are required by § 73.1830 to be entered in the operating log. The indicating instruments shall show the actual values of such parameters, or decimal multiples of those parameters and shall be calibrated to provide an indication within 2% of the corresponding instrument at the transmitter site.

(3) All remote control meters shall conform with specifications required for the regular transmitter, antenna, and monitor meters.

(4) Meters with arbitrary scale divisions may be used provided that calibration charts or curves are provided at the transmitter remote control point showing the relationship between the arbitrary scales and the reading of the main meters.

(5) A sufficient number of control circuits to perform all transmitter adjustments normally required on a daily basis to insure strict compliance with the technical requirements of the rules.

(6) Apparatus designed to use the signal radiated from the antenna, or fed from the antenna circuit by a coaxial link and suitable for continuously and accurately monitoring the waveform and other characteristics of the transmitted visual signal including the percentage of modulation of the signal (a vectorscope or other instrument designed to depict the instantaneous phase and amplitude relationships of color components shall be provided, if any portion of the transmissions are in color). The apparatus shall be capable of providing both full field displays, and displays of test signals inserted on selected lines in the vertical blanking interval (see § 73.682 (a) (21)); appropriate switching shall be provided so that either mode of presentation can be selected by the operator.

(7) A type approved aural modulation monitor, equipped, where necessary, with a properly designed signal frequency amplifier, which utilizes the signal radiated from the antenna, or obtained from the antenna circuit by a coaxial link, and is capable of continuously and accurately indicating the peak

and quasipeak percentages of modulation of the aural signal.

(8) Suitable instruments of generating special signals for the testing and adjustment of the entire transmission system from studio to antenna and the calibration of monitoring equipment, in accordance with paragraphs (f) and (g) of this Section.

(9) Means for determining that any required obstruction lighting of the antenna and supporting tower is functioning properly.

(10) [Deleted]

(b) The control point shall be under the immediate supervision and control of one or more operators meeting the requirements of § 73.661 at all times when the station is operating by remote control. Such operators may perform other tasks which do not require absence from the remote control position, and do not otherwise impair necessary supervision of the TV transmitter.

(c) The control circuits from the control point to the transmitter and the return telemetry circuit must be so designed and installed that open circuits, short circuits, accidental grounding or other line faults, where lines are used, or equipment failures, casual signals or random noise impulses, if other means are used, will not activate the transmitter. Any fault or failure which results in loss of control must cause the transmitter to cease operation. The loss of any telemetry function which provides information necessary to comply with the logging requirements of § 73.671 must result in the actuation of automatic circuitry which, not more than 1 hour from the time of telemetry failure, will terminate operation of the transmitter, and operation by remote control may not resume until all telemetry functions are fully restored.

(d) The equipment at the control point and at the transmitter shall be so installed and protected as not to be accessible to or capable of being operated by persons other than those duly authorized to do so by the licensee.

(e) The waveform monitor at the remote control point shall be calibrated against a waveform monitor maintained at the transmitter during each inspection required by paragraph (g) of this section. Any calibration data found necessary to permit accurate interpretation of the indications of the remote monitor shall be posted at the remote control point in a position adjacent to the monitor.

(f) Test signals shall be generated and inserted in the vertical interval of the visual signal at the remote control point, and shall be observed at the remote control point after extraction from the radio frequency signal at the output of the transmitter. Normally, the radiated signal is utilized after off-the-air reception, but the signal may be obtained by coupling to the output circuit of the transmitter at the point where the radio frequency signal enters the antenna transmission line.

(1) The required test signals, and the place of insertion in the vertical interval shall be as follows:

(i) Multiburst, on field 1, line 17 (see Figure 13 of § 73.699).

(ii) Color bars, on field 2, line 17 (see Figure 14 of § 73.699). During monochrome transmission chrominance information shall not be included in this test signal.

(iii) Composite signal, on field 1, line 18 (see Figure 15 of § 73.699).

(iv) Generally, a composite signal of characteristics identical to those prescribed in subdivision (iii) of this subparagraph, shall be inserted on field 2, line 18, at the remote control point. However, to permit a separate determination to be made of the effects of the transmitter and the studio transmitter link on system performance, the composite signal on field 2, line 18 may be inserted at the transmitter input. Alternatively, in lieu of the composite signal, a licensee may insert any suitable test signal on field 2 of line 18, either at the remote control point or at the transmitter. When such signals are transmitted at the same time as the program material and/or the required test signals, the characteristics of the licensee-selected signals shall be such as to minimize the possibility that their transmission will result in interference with the required test signals, or in degradation of the picture or sound signals.

Figures 6 and 7 of § 73.699 identify the numbered lines and field referred to in this subparagraph.

(2) The required test signals shall be transmitted continuously during all periods of regular station operation.

(3) The required test signals shall be observed immediately after commencement of operation, and thereafter at intervals not exceeding 3 hours. More frequent observations shall be made as necessary to insure proper performance of the transmitter and associated equipment.

(4) The date and time of each observation of the test signals shall be entered in the operating log, together with notations as to the results of these observations.

(5) Any signals or noise already existing on lines 17 and 18 (e.g., network test signals), shall be erased prior to the insertion in the vertical interval of locally generated test signals.

(g) The remote control and monitoring equipment shall be calibrated and tested, and the television broadcast transmitter shall be inspected as often as necessary to insure operation in accordance with this Subpart E, and, in any event, at successive times no longer than 1 week apart.

(h) Upon completion of the calibration, testing, and inspection required by paragraphs (e) and (g) of this Section, the inspecting operator shall enter a signed statement in the maintenance log that the required tests and inspection have been made, noting in detail the tests, adjustments, and repairs which were made to insure proper operation. If complete repair could not be effected, the statement shall set forth in detail the items of equipment concerned, the nature of the

defect and the reasons for failure to make the needed repairs.

**§ 73.677 Remote control authorizations.**

(a) An application to operate a television broadcasting station by remote control, to add a remote control point, or to change the location of a remote control point shall be made on FCC Form 301-A. The application shall include the following information:

(1) The location of the control point, the reason for its choice if at other than the main studio, and the approximate airline distance from the control point to the television broadcast transmitter site.

(2) The number and purpose of the control and telemetry functions that will be provided at the control point.

(3) The method by which control functions will be transmitted to the television transmitter.

(4) The method by which telemetry data required by the rules will be transmitted from the television transmitter to the control point.

(5) A description of the fail-safe features of the remote control system which will insure that loss of either required control or telemetry will place the television transmitter in a nonradiating condition, pursuant to § 73.676 (c).

(6) Measures taken to prevent tampering with or activation of transmitting and remote control equipment by unauthorized persons.

(7) A description of all apparatus maintained for off-the-air monitoring, with particular attention to features intended to insure that the demodulated visual signal is free from noise, interference, or from distortion introduced at the receiving point.

(8) A description of apparatus which will be maintained at the control point for the generation and reception of test signals, and of the apparatus employed for their insertion in and extraction from the vertical blanking interval.

(9) A description of any features of the transmitting plant intended to insure continuity of operation in the event of malfunctioning or failure of the main transmitter, and of the automatic or remote control switching arrangements to be utilized in connection therewith.

(10) [Reserved]

(11) The method of determining, at the control point, that tower obstruction lighting is functioning properly.

(12) A description of the facilities maintained at the control point to permit compliance with § 73.911.

**§ 73.678 Extension meters.**

See § 73.1550.

**§ 73.679 Personal attacks; political editorials.**

See §§ 73.1910, 73.1920 and 73.1930.

**§ 73.680 Equal employment opportunities.**

See § 73.2080.

**TV TECHNICAL STANDARDS**

**§ 73.681 Definitions.**

*Amplitude modulation (AM).* A system of modulation in which the envelope of the transmitted wave contains a component similar to the wave form of the signal to be transmitted.

*Antenna electrical beam tilt.* The shaping of the radiation pattern in the vertical plane of a transmitting antenna by electrical means so that maximum radiation occurs at an angle below the horizontal plane.

*Antenna height above average terrain.* The average of the antenna heights above the terrain from approximately 3 to 16 kilometers (2 to 10 miles) from the antenna for the eight directions spaced evenly for each 45 degrees of azimuth starting with True North. (In general, a different antenna height will be determined in each direction from the antenna. The average of these various heights is considered the antenna height above the average terrain. In some cases less than eight directions may be used. See § 73.684 (d).) Where circular or elliptical polarization is employed, the antenna height above average terrain shall be based upon the height of the radiation center of the antenna which transmits the horizontal component of radiation.

*Antenna mechanical beam tilt.* The intentional installation of a transmitting antenna so that its axis is not vertical, in order to change the normal angle of maximum radiation in the vertical plane.

*Antenna power gain.* The square of the ratio of the root-mean-square free space field intensity produced at one mile in the horizontal plane, in millivolts per meter for one kilowatt antenna input power to 137.6 mV/m. This ratio should be expressed in decibels (dB). (If specified for a particular direction, antenna power gain is based on the field strength in that direction only.)

*Aspect ratio.* The ratio of picture width to picture height as transmitted.

*Aural transmitter.* The ratio equipment for the transmission of the aural signal only.

*Aural center frequency.* (1) The average frequency of the emitted wave when modulated by a sinusoidal signal; (2) the frequency of the emitted wave without modulation.

*Blanking level.* The level of the signal during the blanking interval, except the interval during the scanning synchronizing pulse and the chrominance subcarrier synchronizing burst.

*Chrominance.* The colorimetric difference between any color and a reference color of equal luminance, the reference color having a specific chromaticity.

*Chrominance subcarrier.* The carrier which is modulated by the chrominance information.

*Color transmission.* The transmission of color television signals which can be reproduced with different values of hue, saturation, and luminance.

*Effective radiated power.* The product of the antenna input power and the antenna power gain. This product should be expressed in kilowatts and in decibels above 1 kilowatts (dBk). (If specified for a particular direction, effective radiated power is based on the antenna power gain in that direction only. The licensed effective radiated power is based on the average antenna power gain for each direction in the horizontal plane. When a station is authorized to use a directional antenna or an antenna beam tilt, the direction and amount of maximum effective radiated power will also be specified.) Where circular or elliptical polarization is employed, the term effective radiated power is applied separately to the horizontally and vertically polarized components of radiation. For assignment purposes, only the effective radiated power authorized for the horizontally polarized component will be considered.

*Equivalent isotropically radiated power (EIRP).* The term "equivalent isotropically radiated power" (also known as "effective radiated power above isotropic") means the product of the antenna input power and the antenna gain in a given direction relative to an isotropic antenna.

*Field.* Scanning through the picture area once in the chosen scanning pattern. In the line interlaced scanning pattern of two to one, the scanning of the alternate lines of the picture area once.

*Frame.* Scanning all of the picture area once. In the line interlaced scanning pattern of two to one, a frame consists of two fields.

*Free space field strength.* The field strength that would exist at a point in the absence of waves reflected from the earth or other reflecting objects.

*Frequency departure.* The amount of variation of a carrier frequency or center frequency from its assigned value.

*Frequency deviation.* The peak difference between the instantaneous frequency of the modulated wave and the carrier frequency.

*Frequency modulation (FM).* A system of modulation where the instantaneous radio frequency varies in proportion to the instantaneous amplitude of the modulating signal (amplitude of modulating signal to be measured after pre-emphasis, if used) and the instantaneous radio frequency is independent of the frequency of the modulating signal.

*Frequency swing.* The peak difference between the maximum and the minimum values of the instantaneous frequency of the carrier wave during modulation.

*Interlaced scanning.* A scanning process in which successively scanned lines are spaced an integral number of line widths, and in which the adjacent lines are scanned during successive cycles of the field frequency.

*IRE standard scale.* A linear scale for measuring, in IRE units, the relative amplitudes of the components of a television signal from a zero reference at blanking level, with picture information falling in the positive, and synchronizing information in the negative domain.

NOTE: When a carrier is amplitude modulated by a television signal in accordance with § 73.682, the relationship of the IRE standard scale to the conventional measure of modulation is as follows:

Level	IRE standard scale (units)	Modulation percentage
Zero carrier .....	120	0
Reference white .....	100	12.5
Blanking .....	0	75
Synchronizing peaks (maximum carrier level) .....	-40	100

*Luminance.* Luminous flux emitted, reflected, or transmitted per unit solid angle per unit projected area of the source.

*Monochrome transmission.* The transmission of television signals which can be reproduced in gradations of a single color only.

*Multiplex transmission (aural).* A subchannel added to the regular aural carrier of a television broadcast station by means of frequency modulated subcarriers.

*Negative transmission.* Where a decrease in initial light intensity causes an increase in the transmitted power.

*Peak power.* The power over a radio frequency cycle corresponding in amplitude to synchronizing peaks.

*Percentage modulation.* As applied to frequency modulation, the ratio of the actual frequency deviation to the frequency deviation defined as 100% modulation expressed in percentage. For the aural transmitter of TV broadcast stations, a frequency deviation of  $\pm 25$  kHz is defined as 100% modulation.

*Polarization.* The direction of the electric field as radiated from the transmitting antenna.

*Program related data signal.* A signal, consisting of a series of pulses representing data, which is transmitted simultaneously with and directly related to the accompanying television program.

*Reference black level.* The level corresponding to the specified maximum excursion of the luminance signal in the black direction.

*Reference white level of the luminance signal.* The level corresponding to the specified maximum excursion of the luminance signal in the white direction.

*Scanning.* The process of analyzing successively, according to a predetermined method, the light values of picture elements constituting the total picture area.

*Scanning line.* A single continuous narrow strip of the picture area containing highlights, shadows, and half-tones, determined by the process of scanning.

*Standard television signal.* A signal which conforms to the television transmission standards.

**Synchronization.** The maintenance of one operation in step with another.

**Television broadcast band.** The frequencies in the band extending from 54 to 890 megahertz which are assignable to television broadcast stations. These frequencies are 54 to 72 megahertz (channels 2 through 4), 76 to 88 megahertz (channels 5 and 6), 174 to 216 megahertz (channels 7 through 13), and 470 to 890 megahertz (channels 14 through 83).

**Television broadcast station.** A station in the television broadcast band transmitting simultaneous visual and aural signals intended to be received by the general public.

**Television channel.** A band of frequencies 6 megahertz wide in the television broadcast band and designated either by number or by the extreme lower and upper frequencies.

**Television transmission standards.** The standards which determine the characteristics of a television signal as radiated by a television broadcast station.

**Television transmitter.** The radio transmitter or transmitters for the transmission of both visual and aural signals.

**Vestigial sideband transmission.** A system of transmission wherein one of the generated sidebands is partially attenuated at the transmitter and radiated only in part.

**Visual carrier frequency.** The frequency of the carrier which is modulated by the picture information.

**Visual transmitter.** The radio equipment for the transmission of the visual signal only.

**Visual transmitter power.** The peak power output when transmitting a standard television signal.

#### § 73.682 Transmission standards.

(a) **Transmission standards.** (1) The width of the television broadcast channel shall be 6 MHz.

(2) The visual carrier frequency shall be nominally 1.25 MHz above the lower boundary of the channel.

(3) The aural center frequency shall be 4.5 MHz higher than the visual carrier frequency.

(4) The visual transmission amplitude characteristic shall be in accordance with the chart designated as Figure 5 of § 73.699; *Provided, however,* That for stations operating on Channel 15-83 and employing a transmitter with maximum peak visual power output of 1 kilowatt or less the visual transmission amplitude characteristic may be in accordance with the chart designated as Figure 5a of § 73.699.

(5) The chrominance subcarrier frequency is 63/88 times precisely 5 MHz (3.57954545 . . . MHz). The tolerance is  $\pm 10$  Hz and the rate of frequency drift must not exceed 0.1 Hz per second (cycles per second squared).

(6) For monochrome and color transmissions the number of scanning lines per frame shall be 525, inter-

laced two to one in successive fields. The horizontal scanning frequency shall be 2/455 times the chrominance subcarrier frequency; this corresponds nominally to 15.750 Hz (with an actual value of 15,734.264  $\pm$  0.044 Hz). The vertical scanning frequency is 2/525 times the horizontal scanning frequency; this corresponds nominally to 60 Hz (the actual value is 59.94 hertz). For monochrome transmissions only, the nominal values of line and field frequencies may be used.

(7) The aspect ratio of the transmitted television picture shall be 4 units horizontally to 3 units vertically.

(8) During active scanning intervals, the scene shall be scanned from left to right horizontally and from top to bottom vertically, at uniform velocities.

(9) A carrier shall be modulated within a single television channel for both picture and synchronizing signals. The two signals comprise different modulation ranges in amplitude in accordance with the following:

(i) Monochrome transmissions shall comply with synchronizing waveform specifications in Figure 7 of § 73.699.

(ii) Color transmissions shall comply with the synchronizing waveform specifications in Figure 6 of § 73.699.

(iii) All stations operating on Channels 2 through 14 and those stations operating on Channels 15 through 83 licensed for a peak visual transmitter output power greater than one kW shall comply with the picture transmission amplitude characteristics shown in Figure 5 of § 73.699.

(iv) Stations operating on Channels 15 through 83 licensed for a peak visual transmitter output power of one kilowatt or less shall comply with the picture transmission amplitude characteristic shown in Figure 5 or 5a of § 73.699.

(10) A decrease in initial light intensity shall cause an increase in radiated power (negative transmission).

(11) The reference black level shall be represented by a definite carrier level, independent of light and shade in the picture.

(12) The blanking level shall be transmitted at 75 $\pm$  2.5 percent of the peak carrier level.

(13) The reference white level of the luminance signal shall be 12.5 $\pm$  2.5 percent of the peak carrier level.

(14) It shall be standard to employ horizontal polarization. However, circular or elliptical polarization may be employed if desired, in which case clockwise (right hand) rotation, as denoted in the IEEE Standard Definition 42A65-3E2, and transmission of the horizontal and vertical components in time and space quadrature shall be used. For either omnidirectional or directional antennas the licensed effective radiated power of the vertically polarized component may not exceed the licensed effective radiated power of the horizontally polarized component. For directional antennas,

the maximum effective radiated power of the vertically polarized component shall not exceed the maximum effective radiated power of the horizontally polarized component in any specified horizontal or vertical direction.

(15) The effective radiated power of the aural transmitter shall not be less than 10 percent nor more than 20 percent of the peak radiated power of the visual transmitter.

(16) The peak-to-peak variation of transmitter output within one frame of video signal due to all causes, including hum, noise, and low-frequency response, measured at both scanning synchronizing peak and blanking level, shall not exceed 5 percent of the average scanning synchronizing peak signal amplitude. This provision is subject to change but is considered the best practice under the present state of the art. It will not be enforced pending a further determination thereof.

(17) The reference black level shall be separated from the blanking level by the setup interval, which shall be  $7.5 \pm 2.5$  percent of the video range from blanking level to the reference white level.

(18) For monochrome transmission, the transmitter output shall vary in substantially inverse logarithmic relation to the brightness of the subject. No tolerances are set at this time. This provision is subject to change but is considered the best practice under the present state of the art. It will not be enforced pending a further determination thereof.

(19) The color picture signal shall correspond to a luminance component transmitted as amplitude modulation of the picture carrier and a simultaneous pair of chrominance components transmitted as the amplitude modulation sidebands of a pair of suppressed subcarriers in quadrature.

(20) Equation of complete color signal.

(i) The color picture signal has the following composition:

$$E_M = E_V' + \{E_Q' \sin(\omega t + 33^\circ) + E_I' \cos(\omega t + 33^\circ)\}$$

Where:

$$\begin{aligned} E_Q' &= 0.41(E_R' - E_V') + 0.48(E_R' - E_V') \\ E_I' &= -0.27(E_R' - E_V') + 0.74(E_R' - E_V') \\ E_V' &= 0.30 E_R' + 0.59 E_G' + 0.11 E_B' \end{aligned}$$

For color-difference frequencies below 500 kHz (see (iii) below), the signal can be represented by:

$$E_M = E_V' + \left\{ \frac{1}{1.14} \left[ \frac{1}{1.78} (E_B' - E_V') \sin \omega t + (E_R' - E_V') \cos \omega t \right] \right\}$$

(ii) The symbols in subdivision (i) of this subparagraph have the following significance:

$E_M$  is the total video voltage, corresponding to the scanning of a particular picture element, applied to the modulator of the picture transmitter.

$E_V'$  is the gamma-corrected voltage of the monochrome (black-and-white) portion of the color picture signal, corresponding to the given picture element.

NOTE: Forming of the high frequency portion of the monochrome signal in a different manner is permissible and may in fact be desirable in order to improve the sharpness on saturated colors.

$E_Q'$  and  $E_I'$  are the amplitudes of two orthogonal components of the chrominance signal corresponding respectively to narrow-band and wide-band axes.

$E_R'$ ,  $E_G'$ , and  $E_B'$  are the gamma-corrected voltages corresponding to red, green, and blue signals during the scanning of the given picture element.

$\omega$  is the angular frequency and is  $2\pi$  times the frequency of the chrominance subcarrier.

The portion of each expression between brackets in (i) represents the chrominance subcarrier signal which carries the chrominance information.

The phase reference in the  $E_M$  equation in (i) is the phase of the burst  $+180^\circ$ , as shown in Figure 8 of § 73.699. The burst corresponds to amplitude modulation of a continuous sine wave.

(iii) The equivalent bandwidth assigned prior to modulation to the color difference signals  $E_Q'$  and  $E_I'$  are as follows:

Q-channel bandwidth:

At 400 kHz less than 2 dB down.

At 500 kHz less than 6 dB down.

At 600 kHz at least 6 dB down.

I-channel bandwidth:

At 1.3 MHz less than 2 dB down.

At 3.6 MHz at least 20 dB down.

(iv) The gamma corrected voltages  $E_R'$ ,  $E_G'$ , and  $E_B'$  are suitable for a color picture tube having primary colors with the following chromaticities in the CIE system of specification:

	$x$	$y$
Red (R)-----	0.67	0.33
Green (G)-----	0.21	0.71
Blue (B)-----	0.14	0.08

and having a transfer gradient (gamma exponent) of 2.2 associated with each primary color. The voltages  $E_R'$ ,  $E_G'$ , and  $E_B'$  may be respectively of the form  $E_R'^{1/\gamma}$ ,  $E_G'^{1/\gamma}$ , and  $E_B'^{1/\gamma}$  although other forms may be used with advances in the state of the art.

NOTE: At the present state of the art it is considered inadvisable to set a tolerance on the value of gamma and correspondingly this portion of the specification will not be enforced.

(v) The radiated chrominance subcarrier shall vanish on the reference white of the scene.

NOTE: The numerical values of the signal specification assume that this condition will be reproduced as CIE Illuminant C ( $x=0.310$ ,  $y=0.316$ ).

(vi)  $E_V'$ ,  $E_Q'$ ,  $E_I'$ , and the components of these signals shall match each other in time to 0.05  $\mu$ secs.

(vii) The angle of the subcarrier measured with respect to the burst phase, when reproducing saturated primaries and their complements at 75 percent of full amplitude, shall be within  $\pm 10^\circ$  and their amplitudes shall be within  $\pm 20$  percent of the values specified above. The ratios of the measured amplitudes of the subcarrier to the luminance signal for the same saturated primaries and their complements shall fall between the limits of 0.8 and 1.2 of the values specified for their ratios. Closer tolerances may prove to be practicable and desirable with advance in the art.

(21) The interval beginning with line 17 and continuing through line 20 of the vertical blanking interval of each field may be used for the transmission of test signals and cue and control signals, subject to the

conditions and restrictions set forth below. Test signals may include signals used to supply reference modulation levels so that variations in light intensity of the scene viewed by the camera will be faithfully transmitted, and signals designed to check the performance of the overall transmission system or its individual components. Cue and control signals shall be related to the operation of the television broadcast station. Figures 6 and 7 of § 73.699 identify the numbered lines referred to in this subparagraph.

(i) Modulation of the television transmitter by such signals shall be confined to the area between the reference white level and the blanking level, except where test signals include chrominance subcarrier frequencies, in which case positive excursions of chrominance components may exceed reference white, and negative excursions may extend into the synchronizing area. In no case may the modulation excursions produced by test signals extend beyond peak-of-sync, or to zero carrier level.

(ii) The use of test, cue and control signals shall not result in significant degradation of the program transmissions of the television broadcast station, nor produce emission outside of the frequency band occupied for normal program transmissions.

(iii) Test signals or cue and control signals may not be transmitted during that portion of each line devoted to horizontal blanking.

(iv) Regardless of other provisions of this subparagraph, line 19, in each field, may be used only for the transmission of the reference signal described in Figure 16 of § 73.699.

(22)(i) All of Line 21, Field 1 and the first half of Line 21, Field 2 may be used for the transmission of a program related data signal which, when decoded, provides a visual depiction of information simultaneously being presented on the aural channel. Such data signal shall conform to the format described in Figure 17a of Section 73.699 and may be transmitted during all periods of regular operation.

(A) A reference pulse for a decoder associated adaptive multipath equalizer filter may replace the data signal every eighth frame. The reference pulse shall conform to the format described in Figure 17b of § 73.699.

(B) A decoder test signal consisting of data representing a repeated series of alphanumeric characters may be transmitted at times when no program related data is being transmitted.

(C) A framing code to be used by the data decoder may be transmitted during the first half of Line 21, Field 2 when data, reference pulse and test signals are present. See Figure 17c of § 73.699 for a description of the format for the framing code.

(D) The data signal shall be coded using a non-return-to-zero (NRZ) format and shall employ standard ASCII 7 bit plus parity character codes.

(ii) At times when Line 21 is not being used to transmit a program related data signal, data signals which are not program related may be transmitted, *Provided*: the same data format is used and the information to be displayed is of a broadcast nature.

(iii) The use of Line 21 for transmission of other data signals conforming to other formats may be used subject to prior authorization by the Commission.

(iv) The data signal shall cause no significant degradation to any portion of the visual signal nor produce emissions outside the authorized television channel.

(v) Transmission of visual emergency messages pursuant to § 73.1250 shall take precedent and shall be cause for interrupting transmission of data signals permitted under this subparagraph.

(23) Multiplexing of the aural carrier may be employed for the purpose of transmitting telemetry and alerting signals from the transmitter site to the control point of a television broadcast station authorized to operate by remote control, subject to the following conditions:

(i) No observable degradation shall be caused to either the visual or aural signals.

(ii) The use of multiplexing shall not produce emissions outside the authorized television channel.

(iii) Multiplexing is limited to the use of a single subcarrier.

(iv) The maximum modulation of the aural carrier by the subcarrier shall not exceed 10 percent of the maximum permissible degree of modulation.

(v) The total modulation of the aural carrier, including that caused by the subcarrier, shall comply with the requirements of § 73.1570.

(vi) Multiplexing of the aural carrier shall not result in transmitting system output noise levels exceeding those specified in § 73.687 (b) (4) and (5).

(vii) The instantaneous frequency of the subcarrier used to modulate the aural carrier shall fall within the range 20 to 50 kHz.

(b) *Changes in transmission standards.* The Commission will consider the question whether a proposed change or modification of transmission standards adopted for television would be in the public interest, convenience and necessity, upon petition being filed by the person proposing such change or modification, setting forth the following:

(1) The exact character of the change or modification proposed;

(2) The effect of the proposed change or modification upon all other transmission standards that have been adopted by the Commission for television broadcast stations;

(3) The experimentation and field tests that have been made to show that the proposed change or modification accomplishes an improvement and is technically feasible;

(4) The effect of the proposed change or modification in the adopted standards upon operation and obsolescence of receivers;

**NOTE:** Should a change or modification in the transmission standards be adopted by the Commission, the effective date thereof will be determined in the light of the considerations mentioned in this subparagraph.

(5) The change in equipment required in existing television broadcast stations for incorporating the proposed change or modification in the adopted standards; and

(6) The facts and reasons upon which the petitioner bases his conclusion that the proposed change or modification would be in the public interest, convenience, and necessity.

(c) *Subscription television technical systems.* The Commission may specify deviation from the transmission standards set forth in paragraph (a) of this section to the extent it deems necessary to permit proper operation of an approved subscription television technical system. Any decision to specify such deviation shall be solely at the discretion of the Commission.

【§ 73.682(a) (5) revised eff. 4-30-80; III(80)-1】

§ 73.683 Field strength contours.

(a) In the authorization of TV stations, two field strength contours are considered. These are specified as Grade A and Grade B and indicate the approximate extent of coverage over average terrain in the absence of interference from other television stations. Under actual conditions, the true coverage may vary greatly from these estimates because the terrain over any specific path is expected to be different from the average terrain on which the field strength charts were based. The required field strength, *F* (50,50), in decibels above one microvolt per meter (dBu) for the Grade A and Grade B contours are as follows:

	Grade A (dBu)	Grade B (dBu)
Channels 2-9.....	68	47
Channels 7-13.....	71	58
Channels 14-83.....	74	64

(b) It should be realized that the *F* (50,50) curves when used for Channels 14-83 are not based on measured data at distances beyond about 30 miles. Theory would indicate that the field strengths for Channels 14-83 should decrease more rapidly with distance beyond the horizon than for Channels 2-6, and modification of the curves for Channels 14-83 may be expected as a result of measurements to be made at a later date. For these reasons, the curves should be used with appreciation of their limitations in estimating levels of field strength. Further, the actual extent of service will usually be less than indicated by these estimates due to interference from other stations. Because of these factors, the predicted field strength contours give no assurance of service to any specific percentage of receiver locations within the distances indicated. In licensing proceedings these variations will not be considered.

(c) The field strength contours will be considered for the following purposes only:

(1) In the estimation of coverage resulting from the selection of a particular transmitter site by an applicant for a TV station.

(2) In connection with problems of coverage arising out of application of § 73.636.

(3) In determining compliance with § 73.685(a) concerning the minimum field strength to be provided over the principal community to be served.

§ 73.684 Prediction of coverage.

【*Effectiveness of 73.684 (h), (i), (j), (k) & (l) STAYED UNTIL FURTHER ORDER OF THE COMMISSION; III(76)-3*】

(a) All predictions of coverage made pursuant to this section shall be made without regard to interference and shall be made only on the basis of estimated field strengths. The peak power of the visual signal is used in making predictions of coverage.

(b) Predictions of coverage shall be made only for the same purposes as relate to the use of field strength contours as specified in § 73.683(c).

(c) In predicting the distance to the field strength contours, the *F* (50,50) field strength charts (Figures 9 and 10 of § 73.699) shall be used. If the 50% field strength is defined as that value exceeded for 50% of the time, these *F* (50,50) charts give the estimated 50% field strengths exceeded at 50% of the locations in dB above 1 mV/m. The charts are based on an effective power of 1 kW radiated from a half-wave dipole in free space, which produces an unattenuated field strength at 1 mile of about 103 dB above 1 mV/m (137.6 millivolts per meter). To use the charts for other powers, the sliding scale associated with the charts should be trimmed and used as the ordinate scale. This sliding scale is placed on the charts with the appropriate gradation for power in line with the horizontal 40 dB line on the charts. The right edge of the scale is placed in line with the appropriate antenna height gradations, and the charts then become direct reading (in uV/m and in dB above 1 uV/m) for this power and antenna height. Where the antenna height is not one of those for which a scale is provided, the signal strength or distance is determined by interpolation between the curves connecting the equidistant points. Dividers may be used in lieu of the sliding scale.

(1) In predicting the distance to the Grade A and Grade B field strength contours, the effective radiated power to be used is that radiated at the vertical angle corresponding to the depression angle between the transmitting antenna center of radiation and the radio horizon as determined individually for each azimuthal direction concerned. The depression angle is based on the difference in elevation of the antenna center of radiation above the average terrain and the radio horizon, assuming a smooth spherical earth with a radius of 5,280 miles, and shall be determined by the following equation:

$$A_x = 0.0153 \sqrt{H}$$

Where:

*A<sub>x</sub>* is the depression angle in degrees.

$H$  is the height in feet of the transmitting antenna radiation center above average terrain of the 2-10 mile sector of the pertinent radial. This formula is empirically derived for the limited purpose specified here. Its use for any other purpose may be inappropriate.

(2) In cases where the relative field strength at the depression angle determined by the above formula is 90% or more of the maximum field strength developed in the vertical plane containing the pertinent radial, the maximum radiation shall be used.

(3) In predicting field strengths for other than the Grade A and Grade B contours, the effective radiated power to be used is to be based on the appropriate antenna vertical plane radiation pattern for the azimuthal direction concerned.

(4) Applicants for new TV stations or changes in the facilities of existing TV stations must submit to the FCC a showing as to the location of their stations' or proposed stations' predicted Grade A and Grade B contours, determined in accordance with § 73.684. This showing is to include maps showing these contours, except where applicants have previously submitted material to the FCC containing such information and it is found upon careful examination that the contour locations indicated therein would not change, on any radial, when the locations are determined under this Section. In the latter cases, a statement by a qualified engineer to this effect will satisfy this requirement and no contour maps need be submitted.

(d) The antenna height to be used with these charts is the height of the radiation center of the antenna above the average terrain along the radial in question. In determining the average elevation of the terrain, the elevations between 2 and 10 miles from the antenna site are employed. Profile graphs shall be drawn for 8 radials beginning at the antenna site and extending 10 miles therefrom. The radials should be drawn for each 45 degrees of azimuth starting with True North. At least one radial must include the principal community to be served even though such community may be more than 10 miles from the antenna site. However, in the event none of the evenly spaced radials include the principal community to be served and one or more such radials are drawn in addition to the 8 evenly spaced radials, such additional radials shall not be employed in computing the antenna height above average terrain. Where the 2 to 10 mile portion of a radial extends in whole or in part over large bodies of water as specified in paragraph (e) of this section or extends over foreign territory but the Grade B intensity contour encompasses land area within the United States beyond the 10 mile portion of the radial, the entire 2 to 10 mile portion of the radial shall be included in the computation of antenna height above average terrain. However, where the Grade B contour does not so encompass United States land area and (1) the entire 2 to 10 mile portion of the radial extends over large bodies of water or foreign territory, such radial shall be completely omitted from the computation of antenna height above average ter-

rain, and (2) where a part of the 2 to 10 mile portion of a radial extends over large bodies of water or over foreign territory, only that part of the radial extending from the 2 mile sector to the outermost portion of land area within the United States covered by the radial shall be employed in the computation of antenna height above average terrain. The profile graph for each radial should be plotted by contour intervals of from 40 to 100 feet and, where the data permits, at least 50 points of elevation (generally uniformly spaced) should be used for each radial. In instances of very rugged terrain where the use of contour intervals of 100 feet would result in several points in a short distance, 200- or 400-foot contour intervals may be used for such distances. On the other hand, where the terrain is uniform or gently sloping the smallest contour interval indicated on the topographic map (see paragraph (g) of this Section) should be used, although only relatively few points may be available. The profile graphs should indicate the topography accurately for each radial, and the graphs should be plotted with the distance in miles as the abscissa and the elevation in feet above mean sea level as the ordinate. The profile graphs should indicate the source of the topographical data employed. The graph should also show the elevation of the center of the radiating system. The graph may be plotted either on rectangular coordinate paper or on special paper which shows the curvature of the earth. It is not necessary to take the curvature of the earth into consideration in this procedure, as this factor is taken care of in the charts showing signal intensities. The average elevation of the 8-mile distance between 2 and 10 miles from the antenna site should then be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (that exceeded for 50 percent of the distance) in sectors and averaging those values.

NOTE: The Commission will, upon a proper showing by an existing station that the application of this rule will result in an unreasonable power reduction in relation to other stations in close proximity, consider requests for adjustment in power on the basis of a common average terrain figure for the stations in question as determined by the Commission.

(e) In instances where it is desired to determine the area in square miles within the Grade A and Grade B field strength contours, the area may be determined from the coverage map by planimeter or other approximate means; in computing such areas, exclude (1) areas beyond the borders of the United States, and (2) large bodies of water, such as ocean areas, gulfs, sounds, bays, large lakes, etc., but not rivers.

(f) In cases where the terrain in one or more directions from the antenna site departs widely from the average elevation of the 2 to 10 mile sector, the prediction method may indicate contour distances that are different from what may be expected in practice. For example, a mountain ridge may indicate the practical limit of service although the prediction method may indicate otherwise. In such cases the prediction method should be followed, but a supplemental show-

ing may be made concerning the contour distances as determined by other means. Such supplemental showing should describe the procedure employed and should include sample calculations. Maps of predicted coverage should include both the coverage as predicted by the regular method and as predicted by a supplemental method. When measurements of area are required, these should include the area obtained by the regular prediction method and the area obtained by the supplemental method. In directions where the terrain is such that negative antenna heights or heights below 100 feet for the 2 to 10 mile sector are obtained, a supplemental showing of expected coverage must be included together with a description of the method employed in predicting such coverage. In special cases, the Commission may require additional information as to terrain and coverage.

(g) In the preparation of the profile graphs previously described, and in determining the location and height above sea level of the antenna site, the elevation or contour intervals shall be taken from the United States Geological Survey Topographic Quadrangle Maps, United States Army Corps of Engineers maps or Tennessee Valley Authority maps, whichever is the latest, for all areas for which such maps are available. If such maps are not published for the area in question, the next best topographic information should be used. Topographic data may sometimes be obtained from State and municipal agencies. Data from Sectional Aeronautical Charts (including bench marks) or railroad depot elevations and highway elevations from road maps may be used where no better information is available. In cases where limited topographic data is available, use may be made of an altimeter in a car driven along roads extending generally radially from the transmitter site. Ordinarily the Commission will not require the submission of topographical maps for areas beyond 15 miles from the antenna site, but the maps must include the principal community to be served. If it appears necessary, additional data may be requested. United States Geological Survey Topographic Quadrangle Maps may be obtained from the United States Geological Survey, Department of the Interior, Washington, D.C., 20240. Sectional Aeronautical Charts are available from the United States Coast and Geodetic Survey, Department of Commerce, Washington, D.C., 20235.

(h) The effect of terrain roughness on the predicted field strength of a signal at points distant from a television broadcast station is assumed to depend on the magnitude of a terrain roughness factor ( $\Delta h$ ) which, for a specific propagation path, is determined by the characteristics of a segment of the terrain profile for that path 25 miles in length, located between 6 and 31 miles from the transmitter. The terrain roughness factor has a value equal to the difference, in meters, between elevations exceeded by all points on the profile for 10 percent and 90 percent, respectively, of the length of the profile segment (see § 73.699, Fig. 10d).

(i) If the lowest field strength value of interest is initially predicted to occur over a particular propagation path at a distance which is less than 31 miles from the transmitter, the terrain profile segment used in the determination of the terrain roughness factor over that path shall be that included between points 6 miles from the transmitter and such lesser distance. No terrain roughness correction need be applied when all field strength values of interest are predicted to occur 6 miles or less from the transmitter.

(j) Profile segments prepared for terrain roughness factor determinations should be plotted in rectangular coordinates, with no less than 50 points evenly spaced within the segment, using data obtained from topographic maps, if available, with contour intervals of 50 feet, or less.

(k) The field strength charts (§ 73.699, Figs. 9-10c) were developed assuming a terrain roughness factor of 50 meters, which is considered to be representative of average terrain in the United States. Where the roughness factor for a particular propagation path is found to depart appreciably from this value, a terrain roughness correction ( $\Delta F$ ) should be applied to field strength values along this path as predicted with the use of these charts. The magnitude and sign of this correction, for any value of  $\Delta h$ , may be determined from a chart included in § 73.699 as Figure 10e, with linear interpolation as necessary, for the frequency of the UHF signal under consideration.

(l) Alternatively, the terrain roughness correction may be computed using the following formula:

$$\Delta F = C - 0.03(\Delta h)(1 + f/300)$$

Where:

$\Delta F$  = terrain roughness correction in dB

C = a constant having a specific value for use with each set of field strength charts:

1.9 for TV Channels 2-6

2.5 for TV Channels 7-13

4.8 for TV Channels 14-69

$\Delta h$  = terrain roughness factor in meters

f = frequency of signal in megahertz (MHz)

**[Effectiveness of 73.684 (h), (i), (j), (k) & (l) STAYED UNTIL FURTHER ORDER OF THE COMMISSION]**

**§ 73.685 Transmitter location and antenna system.**

(a) The transmitter location shall be chosen so that, on the basis of the effective radiated power and antenna height above average terrain employed, the following minimum field strength in dB above one uV/m (dBu) will be provided over the entire principal community to be served:

Channels 2-6	Channels 7-13	Channels 14-83
74 dBu	77 dBu	80 dBu

(b) Location of the antenna at a point of high elevation is necessary to reduce to a minimum the shadow effect on propagation due to hills and buildings which may reduce materially the strength of the station's signals. In general, the transmitting antenna of a sta-

tion should be located at the most central point at the highest elevation available. To provide the best degree of service to an area, it is usually preferable to use a high antenna rather than a low antenna with increased transmitter power. The location should be so chosen that line-of-sight can be obtained from the antenna over the principal community to be served; in no event should there be a major obstruction in this path. The antenna must be constructed so that it is as clear as possible of surrounding buildings or objects that would cause shadow problems. It is recognized that topography, shape of the desired service area, and population distribution may make the choice of a transmitter location difficult. In such cases, consideration may be given to the use of a directional antenna system, although it is generally preferable to choose a site where a nondirectional antenna may be employed.

(c) In cases of questionable antenna locations it is desirable to conduct propagation tests to indicate the field intensity expected in the principal community to be served and in other areas, particularly where severe shadow problems may be expected. In considering applications proposing the use of such locations, the Commission may require site tests to be made. Such tests should be made in accordance with the measurement procedure in § 73.686, and full data thereon must be supplied to the Commission. Test transmitters should employ an antenna having a height as close as possible to the proposed antenna height, using a ballon or other support if necessary and feasible. Information concerning the authorization of site tests may be obtained from the Commission upon request.

(d) Present information is not sufficiently complete to establish "blanket areas" of television broadcast stations. A "blanket area" is that area adjacent to a transmitter in which the reception of other stations is subject to interference due to the strong signal from this station. The authorization of station construction in areas where blanketing is found to be excessive will be on the basis that the applicant will assume full responsibility for the adjustment of reasonable complaints arising from excessively strong signals of the applicant's station or take other corrective action.

(e) An antenna designed or altered to produce a noncircular radiation pattern in the horizontal plane is considered to be a directional antenna. Antennas purposely installed in such a manner as to result in the mechanical beam tilting of the major vertical radiation lobe are included in this category. Directional antennas may be employed for the purpose of improving service upon an appropriate showing of need. Stations operating on Channels 2-13 will not be permitted to employ a directional antenna having a ratio of maximum to minimum radiation in the horizontal plane in excess of 10 dB. Stations operating on Channels 14-83 with transmitters delivering a peak visual power output of more than 1 kilowatt may employ directive transmitting antennas with a maximum to minimum radiation in the horizontal plane of

not more than 15 dB. Stations operating on Channels 14-83 and employing transmitters delivering a peak visual power output of 1 kilowatt or less are not limited as to the ratio of maximum to minimum radiation.

(f) Applications proposing the use of directional antenna systems must be accompanied by the following:

(1) Complete description of the proposed antenna system.

(2) Orientation of array with respect to true north; time phasing of fields from elements (degrees leading or lagging); space phasing of elements (in feet and degrees); and ratio of fields from elements. Where mechanical beam tilt is intended, the amount of tilt in degrees of the antenna vertical axis and the orientation of the downward tilt with respect to true north shall be specified.

(3) Horizontal and vertical plane radiation patterns showing the free space field strength in mV/m at 1 mile and the effective radiated power, in dBk, for each direction. The method by which the radiation patterns were computed or measured shall be fully described, including formulas used, equipment employed, sample calculations and tabulations of data. Sufficient vertical plane patterns shall be included to indicate clearly the radiation characteristics of the antenna above and below the horizontal plane. In cases where the angle at which the maximum vertical radiation varies with azimuth, a separate vertical radiation pattern shall be provided for each pertinent radial direction. The horizontal plane pattern shall be plotted on polar coordinate paper with reference to true north.

The vertical plane patterns shall be plotted on rectangular coordinate paper with reference to the horizontal plane.

(4) Name, address, and qualifications of the engineer making the calculations.

(g) Applications proposing the use of television broadcast antennas within 200 feet of other television broadcast antennas operating on a channel within 20 percent in frequency of the proposed channel, or proposing the use of television broadcast antennas on Channels 5 or 6 within 200 feet of FM broadcast antennas, must include a showing as to the expected effect, if any, of such proximate operation.

(h) Where simultaneous use of antennas or antenna structures is proposed, the following provisions shall apply:

(1) In cases where it is proposed to use a tower of a AM broadcast station as a supporting structure for a television broadcast antenna, an appropriate application for changes in the radiating system of the standard broadcast station must be filed by the licensee thereof. A formal application (FCC Form 301, or FCC Form 340 for a noncommercial educational station) will be required if the proposal involves substantial change in the physical height or radiation characteristics of the standard broadcast antennas;

otherwise an informal application will be acceptable. (In case of doubt, an informal application (letter) together with complete engineering data should be submitted.) An application may be required for other classes of stations when the tower is to be used in connection with a television station.

(2) When the proposed TV antenna is to be mounted on a tower in the vicinity of an AM station directional antenna system and it appears that the operation of the directional antenna system may be affected, an engineering study must be filed with the TV application concerning the effect of the TV antenna on the AM directional radiation pattern. Field measurements of the AM station may be required prior to and following construction of the TV station antenna, and readjustments made as necessary.

(i) [Deleted]

#### § 73.686 Field strength measurements.

(a) Except as provided for in § 73.612, television broadcast stations shall not be protected from any type of interference or propagation effect. Persons desiring to submit testimony, evidence or data to the Commission for the purpose of showing that the technical standards contained in this subpart do not properly reflect the levels of any given type of interference or propagation effect may do so only in appropriate rulemaking proceedings concerning the amendment of such technical standards. Persons making field strength measurements for formal submission to the Commission in rulemaking proceedings, or making such measurements upon the request of the Commission, shall follow the procedure for making and reporting such measurements outlined in paragraph (b) of this section. In instances where a showing of the measured level of a signal prevailing over a specific community is appropriate, the procedure for making and reporting field strength measurements for this purpose is set forth in paragraph (c) of this section.

(b) Collection of field strength data for propagation analysis.

(1) *Preparation for measurements.* (i) On large scale topographic maps, eight or more radials are drawn from the transmitter location to the maximum distance at which measurements are to be made, with the angles included between adjacent radials of approximately equal size. Radials should be oriented so as to traverse representative types of terrain. The specific number of radials and their orientation should be such as to accomplish this objective.

(ii) At a point exactly 10 miles from the transmitter; each radial is marked, and at greater distances at successive two mile intervals. Where measurements are to be conducted at UHF, or over extremely rugged terrain, shorter intervals may be employed, but all such intervals shall be of equal length. Accessible roads intersecting each radial as nearly as possible at each two mile marker are selected. These intersections are the points on the radial at which measurements are to be made, and are referred to subsequently as measuring locations. The elevation of

each measuring location should approach the elevation at the corresponding two mile marker as nearly as possible.

(2) *Measurement procedure.* The field strength of the visual carrier shall be measured with a voltmeter capable of indicating accurately the peak amplitude of the synchronizing signal. All measurements shall be made utilizing a receiving antenna designed for reception of the horizontally polarized signal component, elevated 30 feet above the roadbed. At each measuring location, the following procedure shall be employed.

(i) The instrument calibration is checked.

(ii) The antenna is elevated to a height of 30 feet.

(iii) The receiving antenna is rotated to determine if the strongest signal is arriving from the direction of the transmitter.

(iv) The antenna is oriented so that the sector of its response pattern over which maximum gain is realized is in the direction of the transmitter.

(v) A mobile run of at least 100 feet is made, which is centered on the intersection of the radial and the road, and the measured field strength is continuously recorded on a chart recorder over the length of the run.

(vi) The actual measuring location is marked exactly on the topographic map, and a written record, keyed to the specific location, is made of all factors which may affect the recorded field, such as topography, height and types of vegetation, buildings, obstacles, weather, and other local features.

(vii) If, during the test conducted as described in paragraph (b) (2) (iii) of this section, the strongest signal is found to come from a direction other than from the transmitter, after the mobile run prescribed in paragraph (b) (2) (v) of this section is concluded, additional measurements shall be made in a "cluster" of at least five fixed points. At each such point, the field strengths with the antenna oriented toward the transmitter, and with the antenna oriented so as to receive the strongest field, are measured and recorded. Generally, all points should be within 200 feet of the center point of the mobile run.

(viii) If overhead obstacles preclude a mobile run of at least 100 feet, a "cluster" of five spot measurements may be made in lieu of this run. The first measurement in the cluster is identified. Generally, the locations for other measurements shall be within 200 feet of the location of the first.

(3) *Method of reporting measurements.* A report of measurements to the Commission shall be submitted in affidavit form, in triplicate, and should contain the following information:

(i) Tables of field strength measurements, which, for each measuring location, set forth the following data:

(A) Distance from the transmitting antenna.

(B) Ground elevation at measuring location.

(C) Date, time of day, and weather.

(D) Median field in dBu for 0 dBk, for mobile run or

for cluster, as well as maximum and minimum measured field strengths.

(E) Notes describing each measuring location.

(i) U.S. Geological Survey topographic maps, on which is shown the exact location at which each measurement was made. The original plots shall be made on maps of the largest available scale. Copies may be reduced in size for convenient submission to the Commission, but not to the extent that important detail is lost. The original maps shall be made available, if requested. If a large number of maps is involved, an index map should be submitted.

(iii) All information necessary to determine the pertinent characteristics of the transmitting installation, including frequency, geographical coordinates of antenna site, rated and actual power output of transmitter, measured transmission line loss, antenna power gain, height of antenna above ground, above mean sea level, and above average terrain. The effective radiated power should be computed, and horizontal and vertical plane patterns of the transmitting antenna should be submitted.

(iv) A list of calibrated equipment used in the field strength survey, which, for each instrument, specifies its manufacturer, type, serial number and rated accuracy, and the date of its most recent calibration by the manufacturer, or by a laboratory. Complete details of any instrument not of standard manufacture shall be submitted.

(v) A detailed description of the calibration of the measuring equipment, including field strength meters, measuring antenna, and connecting cable.

(vi) Terrain profiles in each direction which measurements were made, drawn on curved earth paper for equivalent  $4/3$  earth radius, of the largest available scale.

(c) Collection of field strength data to determine television service in specific communities.

(1) *Preparation for measurement.* (i) The population (P) of the community, and its suburbs, if any, is determined by reference to an appropriate source, e.g., the 1970 U.S. Census tables of population of cities and urbanized areas.

(ii) The number of locations at which measurements are to be made shall be at least 15, and shall be approximately equal to  $0.1 (P)^{1/2}$ , if this product is a number greater than 15.

(iii) A rectangular grid, of such size and shape as to encompass the boundaries of the community is drawn on an accurate map of the community. The number of line intersections on the grid included within the boundaries of the community shall be at least equal to the required number of measuring locations. The position of each intersection on the community map determines the location at which a measurement shall be made.

(2) *Measurement procedure.* The field strength of the visual carrier shall be measured, with a voltmeter capable of indicating accurately the peak amplitude of

the synchronizing signal. All measurements shall be made utilizing a receiving antenna designed for reception of the horizontally polarized signal component, elevated 30 feet above street level.

(i) Each measuring location shall be chosen as close as feasible to a point indicated on the map, as previously prepared, and at as nearly the same elevation as that point as possible.

(ii) At each measuring location, after equipment calibration and elevation of the antenna, a check is made to determine whether the strongest signal arrives from a direction other than from the transmitter.

(iii) At 20 percent or more of the measuring locations, mobile runs, as described in paragraph (b) (2) of this section shall be made, with no less than three such mobile runs in any case. The points at which such mobile measurements are made shall be well separated. Spot measurements may be made at other measuring points.

(iv) Each actual measuring location is marked exactly on the map of the community, and suitably keyed. A written record shall be maintained, describing, for each location, factors which may affect the recorded field, such as the approximate time of measurement, weather, topography, overhead wiring, heights and types of vegetation, buildings and other structures. The orientation, with respect to the measuring location shall be indicated of objects of such shape and size as to be capable of causing shadows or reflections. If the strongest signal received was found to arrive from a direction other than that of the transmitter, this fact shall be recorded.

(3) *Method of reporting measurements.* A report of measurements to the Commission shall be submitted in affidavit form, in triplicate, and should contain the following information:

(i) A map of the community showing each actual measuring location, specifically identifying the points at which mobile runs were made.

(ii) A table keyed to the above map, showing the field strength at each measuring point, reduced to dBu for the actual effective radiated power of the station. Weather, date, and time of each measurement shall be indicated.

(iii) Notes describing each measuring location.

(iv) A topographic map of the largest available scale on which are marked the community and the transmitter site of the station whose signals have been measured, which includes all areas on or near the direct path of signal propagation.

(v) Computations of the mean and standard deviation of all measured field strengths, or a graph on which the distribution of measured field strength values is plotted.

(vi) A list of calibrated equipment used for the measurements, which for each instrument, specifies its manufacturer, type, serial number and rated accuracy, and the date of its most recent calibration by the

manufacturer, or by a laboratory. Complete details of any instrument not of standard manufacture shall be submitted.

(vii) A detailed description of the procedure employed in the calibration of the measuring equipment, including field strength meters measuring antenna, and connecting cable.

#### § 73.687 Transmission system requirements.

(a) *Visual transmitter.* (1) For monochrome transmission only, the overall attenuation characteristics of the transmitter, measured in the antenna transmission line after the vestigial sideband filter (if used), shall not be greater than the following amounts below the ideal demodulated curve. (See Figure 11 of § 73.699.)

- 2 dB at 0.5 MHz
- 2 dB at 1.25 MHz
- 3 dB at 2.0 MHz
- 6 dB at 3.0 MHz
- 12 dB at 3.5 MHz

The curve shall be substantially smooth between these specified points, exclusive of the region from 0.75 to 1.25 MHz. Output measurement shall be made with the transmitter operating into a dummy load of pure resistance and the demodulated voltage measured across this load. The ideal demodulated curve is that shown in Figure 11 of § 73.699. Stations operating on Channels 15–83 and employing a transmitter delivering maximum peak visual power output of 1 kilowatt or less will not be required to comply with the provisions of this subparagraph.

(2) For color transmission, the standard given by subparagraph (1) of this paragraph applies except as modified by the following: A sine wave of 3.58 MHz introduced at those terminals of the transmitter which are normally fed the composite color picture signal shall produce a radiated signal having an amplitude (as measured with a diode on the R.F. transmission line supplying power to the antenna) which is down  $6 \pm 2$  dB with respect to a signal produced by a sine wave of 200 kHz. In addition, between the modulating frequencies of 2.1 and 4.1 MHz, the amplitude of the radiated signal shall not vary by more than  $\pm 2$  dB from its value at 3.58 MHz. At the modulating frequency of 4.18 MHz, the amplitude of the radiated signal shall not be down more than 4 dB below its value of 3.58 MHz. Stations operating on Channels 15–83 and employing a transmitter delivering maximum peak visual power output of 1 kilowatt or less are not required to comply with the provisions of this subparagraph.

(3) The field strength or voltage of the lower sideband, as radiated or dissipated and measured as described in subparagraph (4) of this paragraph, shall not be greater than  $-20$  dB for a modulating frequency of 1.25 MHz or greater and in addition, for color, shall not be greater than  $-42$  dB for a modulating frequency of 3.579545 MHz (the color subcarrier frequency). For both monochrome and color, the field strength or voltage of the upper sideband as radiated

or dissipated and measured as described in subparagraph (4) of this paragraph, shall not be greater than  $-20$  dB for a modulating frequency of 4.75 MHz or greater. For stations operating on Channels 15–83 and employing a transmitter delivering maximum peak visual power output of 1 kilowatt or less, the field strength or voltage of the upper and lower sidebands, as radiated or dissipated and measured as described in subparagraph (4) of this paragraph, shall depart from the visual amplitude characteristic. (Figure 5a of § 73.699) by no more than the following amounts:

- $-2$  dB at 0.5 MHz below visual carrier frequency;
- $-2$  dB at 0.5 MHz above visual carrier frequency;
- $-2$  dB at 1.25 MHz above visual carrier frequency;
- $-3$  dB at 2.0 MHz above visual carrier frequency;
- $-6$  dB at 3.0 MHz above visual carrier frequency;
- $-12$  dB at 3.5 MHz above visual carrier frequency;
- $-8$  dB at 3.58 MHz above visual carrier frequency (for color transmission only).

The field strength or voltage of the upper and lower sidebands, as radiated or dissipated and measured as described in subparagraph (4) of this paragraph, shall not exceed a level of  $-20$  dB for a modulating frequency of 4.75 MHz or greater. If interference to the reception of other stations is caused by out-of-channel lower sideband emission, the technical requirements applicable to stations operating on Channels 2–13 shall be met.

(4) The attenuation characteristics of a visual transmitter shall be measured by application of a modulating signal to the transmitter input terminals in place of the normal composite television video signal. The signal applied shall be a composite signal composed of a synchronizing to establish peak output voltage plus a variable frequency sine wave voltage occupying the interval between synchronizing pulses. (The “synchronizing signal” referred to in this section means either a standard synchronizing wave form or any pulse that will properly set the peak.) The axis of the sine wave in the composite signal observed in the output monitor shall be maintained at an amplitude 0.5 of the voltage at synchronizing peaks. The amplitude of the sine wave input shall be held at a constant value. This constant value should be such that at no modulating frequency does the maximum excursion of the sine wave, observed in the composite output signal monitor, exceed the value 0.75 of peak output voltage. The amplitude of the 200 kilohertz sideband shall be measured and designated zero dB as a basis for comparison. The modulation signal frequency shall then be varied over the desired range and the field strength or signal voltage of the corresponding sidebands measured. As an alternate method of measuring, in those cases in which the automatic d-c insertion can be replaced by manual control, the above characteristic may be taken by the use of a video sweep generator and without the use of pedestal synchronizing pulses. The d-c level shall be set for midcharacteristic operation.

(5) A sine wave, introduced at those terminals of the transmitter which are normally fed the composite color picture signal, shall produce a radiated signal

having an envelope delay, relative to the average envelope delay between 0.05 and 0.20 MHz of zero microseconds up to a frequency of 3.0 MHz; and then linearly decreasing to 4.18 MHz so as to be equal to  $-0.17 \mu\text{secs}$  at 3.58 MHz. The tolerance on the envelope delay shall be  $\pm 0.05 \mu\text{secs}$  at 3.58 MHz. The tolerance shall increase linearly to  $\pm 0.1 \mu\text{sec}$  down to 2.1 MHz, and remain at  $\pm 0.1 \mu\text{sec}$  down to 0.2 MHz. (Tolerances for the interval of 0.0 to 0.2 MHz are not specified at the present time.) The tolerance shall also increase linearly to  $\pm 0.1 \mu\text{sec}$  at 4.18 MHz.

(6) The radio frequency signal, as radiated, shall have an envelope as would be produced by a modulating signal in conformity with § 73.682 and Figure 6 or 7 of § 73.699, as modified by vestigial sideband operation specified in Figure 5 of § 73.699. For stations operating on Channels 15-83 the radio frequency signal as radiated, shall have an envelope as would be produced by a modulating signal in conformity with § 73.682 and Figures 6 or 7 of § 73.699.

(7) The time interval between the leading edges of successive horizontal pulses shall vary less than one half of one percent of the average interval. However, for color transmissions, § 73.682(a) (5) and (6) shall be controlling.

(8) The rate of change of the frequency of recurrence of the leading edges of the horizontal synchronizing signals shall be not greater than 0.15 percent per second, the frequency to be determined by an averaging process carried out over a period of not less than 20, nor more than 100 lines, such lines not to include any portion of the blanking interval. However, for color transmissions, § 73.682(a) (5) and (6) shall be controlling.

(9) For color transmission the transfer characteristic (that is the relationship between the transmitter RF output and video signal input) shall be substantially linear between the reference black and reference white levels.

(b) *Aural transmitter.* (1) The transmitter must operate satisfactorily with a frequency deviation of  $\pm 25 \text{ kHz}$ , which is defined as 100% modulation. It is recommended, however, that the transmitter be designed to operate satisfactorily with a frequency deviation of at least  $\pm 40 \text{ kHz}$ .

(2) The transmitting system (from input terminals of microphone pre-amplifier, through audio facilities at the studio, through telephone lines or other circuits between studio and transmitter, through audio facilities at the transmitter, and through the transmitter, but excluding equalizers for the correction of deficiencies in microphone response) shall be capable of transmitting a band of frequencies from 50 to 15,000 Hz. Pre-emphasis shall be employed in accordance with the impedance-frequency characteristic of a series inductance-resistance network having a time constant of 75 microseconds. (See Figure 12 of § 73.699.) The deviation of the system response from the standard pre-emphasis curve shall lie between two limits as shown by Figure 12 of § 73.699. The upper of these limits shall

be uniform (no deviation) from 50 to 15,000 Hz. The lower limit shall be uniform from 100 to 7,500 Hz, and three dB below the upper limit; from 100 to 50 Hz the lower limit shall fall from three dB limit at a uniform rate of one dB per octave (4 dB at 50 Hz); from 7,500 to 15,000 Hz the lower limit shall fall from three dB limit at a uniform rate of two dB per octave (5 dB at 15,000 Hz).

(3) At any modulating frequency between 50 and 15,000 Hz and at modulation percentages of 25 percent, 50 percent, and 100 percent, the combined audio frequency harmonics measured in the output of the system shall not exceed the root-mean-square values given in the following table:

Modulation frequency	Distortion (percent)
50 to 100 Hz	3.5
100 to 7,500 Hz	2.5
7,500 to 15,000 Hz	3.0

(i) Measurement shall be made employing 75 microsecond de-emphasis in the measuring equipment and 75 microsecond pre-emphasis in the transmitting equipment, and without compression if a compression amplifier is employed. Harmonics shall be included to 30 kHz.

**NOTE:** Measurements of distortion using deemphasis in the measuring equipment are not practical at the present time for the range 7,500 to 15,000 Hz for 25 and 50 percent modulation. Therefore, measurements should be made at 100 percent modulation and on at least the following modulating frequencies: 50, 100, 400, 1,000, 5,000, 10,000, and 15,000 Hz. At 25 and 50 percent modulation, measurements should be made on at least the following modulating frequencies: 50, 100, 400, 1,000 and 5,000 Hz.

(ii) It is recommended that none of the three main divisions of the system (transmitter, studio to transmitter circuit, and audio facilities) contribute over one-half of these percentages, since at some frequencies the total distortion may become the arithmetic sum of the distortions of the divisions.

(4) The transmitting system output noise level (frequency modulation) in the band of 50 to 15,000 Hz must be at least 55 dB below the audio frequency level representing 100% modulation (frequency deviation of  $\pm 25 \text{ kHz}$ ). For the purposes of these measurements, the visual transmitter should not be in operation since the exact amount of noise possible from the visual transmitter is not known.

(5) The transmitting system output noise level (amplitude modulation) in the band of 50 to 15,000 Hz shall be at least 50 dB below the level representing 100 percent amplitude modulation.

**NOTE:** For the purpose of these measurements, the visual transmitter should be inoperative since the exact amount of noise permissible from that source is not known at this time.

(6) If a limiting or compression amplifier is employed, precaution should be maintained in its connection in the circuit due to the use of pre-emphasis in the transmitting system.

(7) Aural modulation levels are specified in § 73.1570.

(c) *Requirements applicable to both visual and aural transmitters.* (1) Automatic means shall be provided in the visual transmitter to maintain the carrier frequency within  $\pm$ one kilohertz of the authorized frequency; automatic means shall be provided in the aural transmitter to maintain the carrier frequency 4.5 mHz above the actual visual carrier frequency within  $\pm$ one kHz.

(2) The transmitters shall be equipped with suitable indicating instruments for the determination of operating power and with other instruments necessary for proper adjustment, operation, and maintenance of the equipment.

(3) Adequate provision shall be made for varying the output power of the transmitters to compensate for excessive variations in line voltage or for other factors affecting the output power.

(4) Adequate provisions shall be provided in all component parts to avoid overheating at the rated maximum output powers.

(d) *Construction.* In general, the transmitters shall be mounted either on racks and panels or in totally enclosed frames protected as required by the provisions of the National Electrical Code concerning transmitting equipment at radio and television stations, and as set forth below:

(1) Means shall be provided for making all tuning adjustments, requiring voltages in excess of 350 volts to be applied to the circuit, from the front of the panels with all access doors closed.

(2) Proper bleeder resistors or other automatic means shall be installed across all the capacitor banks to lower any voltage which may remain accessible with access door open to less than 350 volts within two seconds after the access door is opened.

(3) All plate supply and other high voltage equipment, including transformers, filters, rectifiers and motor generators, shall be protected so as to prevent injury to operating personnel.

(i) Commutator guards shall be provided on all high voltage rotating machinery. Coupling guards should be provided on motor generators.

(ii) Power equipment and control panels of the transmitters shall meet the above requirements (exposed 220-volt A.C. switching equipment on the front of the power control panels is not recommended but is not prohibited).

(iii) Power equipment located at a television broadcast station not directly associated with the transmitters (not purchased as part of same), such as power distribution panels, are not subject to the provisions of this subpart.

(4) The following provisions shall be applicable to metering equipment:

(i) All instruments having more than 1,000 volts potential to ground on the movement shall be protected

by a cage or cover in addition to the regular case. (Some instruments are designed by the manufacturers to operate safely with voltages in excess of 1,000 volts on the movement. If it can be shown by the manufacturer's rating that the instrument will operate safely at the applied potential, additional protection is not necessary.)

(ii) In case the plate voltmeters are located on the low potential side of the multiplier resistors with the high potential terminal of the instruments at or less than 1,000 volts above ground, no protective case is required. However, it is good practice to protect voltmeters subject to more than 5,000 volts with suitable over-voltage protective devices across the instrument terminals in case the winding opens.

(iii) Transmission line meters and any other radio frequency instrument which may be necessary for the operator to read shall be so installed as to be read easily and accurately without the operator having to risk contact with circuits carrying high potential radio frequency energy.

(e) *Wiring and shielding.* (1) The transmitter panels or units shall be wired in accordance with standard practice, such as insulated leads properly cabled and supported, coaxial cables, or rigid bus bar properly insulated and protected.

(2) Wiring between units of the transmitters, with the exception of circuits carrying radio frequency energy or video energy, shall be installed in conduits or approved fiber or metal raceways to protect it from mechanical injury.

(3) Circuits carrying radio frequency or video energy between units shall be coaxial cables, two wire balanced lines, or properly shielded lines.

(4) All stages or units shall be adequately shielded and filtered to prevent interaction and radiation.

(5) The modulation monitors and radio frequency lines to the transmitters shall be thoroughly shielded.

(f) [Reserved.]

(g) *Installation.* (1) The installation of transmitting equipment shall be made in suitable quarters.

(2) Suitable facilities shall be provided for the welfare and comfort of the operator.

(h) [Reserved]

(i) *Operation.* (1) Spurious emissions, including radio frequency harmonics, shall be maintained at as low a level as the state of the art permits. As measured at the output terminals of the transmitter (including harmonic filters, if required) all emissions removed in frequency in excess of 3 MHz above or below the respective channel edge shall be attenuated no less than 60 dB below the visual transmitted power. (The 60 dB value for television transmitters specified in this rule should be considered as a temporary requirement which may be increased at a later date, especially when more higher-powered equipment is utilized. Stations should, therefore, give consideration to the installation of equip-

ment with greater attenuation than 60 dB). In the event of interference caused to any service greater attenuation will be required.

(2) If a limiting or compression amplifier is used in conjunction with the aural transmitter, due operating precautions should be maintained because of pre-emphasis in the transmitting system.

(j) *Studio equipment.* Studio equipment shall be subject to all the above requirements where applicable, except as follows:

(1) If properly covered by an underwriter's certificate, it will be considered as satisfying safety requirements.

(2) The pertinent provisions of the National Electrical Code concerning transmitting equipment at radio and television stations shall apply for voltages only when in excess of 500 volts.

(3) No specific requirements are made relative to the design and acoustical treatment of studios. However, the design of studios, particularly the main studio, shall be compatible with the required performance characteristics of television broadcast stations.

(k) *Subscription television technical systems.* The Commission may specify deviation from the transmitter and associated equipment requirements set forth in this section to the extent it deems necessary to permit proper operation of an approved subscription television technical system. Any decision to specify such deviation shall be solely at the discretion of the Commission.

【§ 73.687 (b) (4) revised, (f) removed and marked "Reserved" eff. 4-30-80; III (80)-1】

§ 73.688 Indicating instruments.

(a) Each television broadcast station shall be equipped with indicating instruments which conform with the specifications described in § 73.1215 for measuring the operating parameters of the last radio stage of the visual and aural transmitters necessary for determining the output power by the indirect method; relative amplitude of the transmission line radio frequency current, voltage, or power of both transmitters; and with such other instruments as are necessary for the proper adjustment, operation and maintenance of the transmitting system.

(b) No specifications are prescribed at this time regarding the peak indicating device required by § 73.689.

(c) [Reserved]

(d) The function of each instrument shall be clearly and permanently shown on the instrument itself or on the panel immediately adjacent thereto.

(e) In the event that any one of these indicating instruments becomes defective, when no substitute which conforms with the required specifications is available, the station may be operated without the defective instrument pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: *Provided, That:*

(1) Appropriate entries shall be made in the maintenance log of the station showing the date and time the meter was removed from and restored to service.

(2) [Reserved]

(3) If the defective instrument is the transmission line meter used for determining the output power by the direct method, the operating power shall be determined or maintained by the indirect method whenever possible or by using the operating parameters of the last radio stage of the transmitter during the time the station is operated without the transmission line meter.

(4) If conditions beyond the control of the licensee prevent the restoration of the meter to service within the above allowed period, informal request in accordance with § 73.3540 may be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete the repairs of the defective instrument.

§ 73.689 Operating power.

(a) *Determination.* See § 73.663.

(b) *Maintenance.* See § 73.1560.

(c) *Reduced power.* See § 73.1560.

MONITORING EQUIPMENT

§ 73.690 Frequency measurements.

See § 73.1540.

§ 73.691 Modulation monitors.

(a) The licensee of each TV broadcast station shall have in operation at the transmitter, extension meter, or remote control point where the operator in charge of the transmitting system is on duty an approved modulation monitor for the aural transmitter and sufficient monitoring equipment for the visual signal to determine that the transmissions comply with the requirements of the Subpart.

(b) In the event the visual monitoring equipment or the aural modulation monitor becomes defective, the station may be operated without such equipment pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: *Provided, That:*

(1) Appropriate entries shall be made in the maintenance log of the station to show the date and time the equipment was removed from and restored to service.

(2) During the period when the station is operated without the aural modulation monitor or the visual monitoring equipment, the licensee shall provide other suitable means for insuring that the aural modulation is maintained within the tolerance prescribed in § 73.1570 and that the visual signal is maintained in accordance with the requirements of this subpart.

(3) If conditions beyond the control of the licensee or permittee prevent the restoration of the monitor or monitoring equipment to service within the period

specified above, an informal request in accordance with § 73.3549 of this chapter may be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument or equipment.

【§ 73.691 (a) revised eff. 4-30-80; III (80)-1】

【§ 73.692 deleted and reserved eff. 4-30-80; III (80)-1】

#### § 73.692 [Reserved]

#### § 73.694 Requirements for type approval of TV aural modulation monitors.

(a) Procedures for obtaining type approval of TV aural modulation monitors are contained in § 73.1668 and Subpart J of Part 2 of the FCC rules.

(b) The specifications that the aural modulation monitor shall meet before it will be approved by the Commission are as follows:

(1) Means shall be provided for indicating that the signal input to the modulation monitor is in the range required for proper operations.

(2) A modulation peak indication device must be provided that can be set at any pre-determined value from 50% to 120% modulation ( $\pm 25$  kHz deviation is defined as 100% modulation) and for either positive or negative deviation.

(3) A quasi-peak indicator with a meter having the characteristics given below must be used with a circuit such that peaks of modulation duration between 40 and 90 milliseconds are indicated to 90% of full value and the discharge rate adjusted so that the pointer returns from full reading to within 10% of zero within 500 to 800 milliseconds. A switch must be provided so that this meter will read either positive or negative deviation.

(4) When modulation of a magnitude necessary to produce a deflection equivalent to 100 percent modulation is suddenly applied and left on, the indicating instrument shall not deflect beyond 110 percent on the first passage of the 100 percent mark and shall have

excursion from the final value of less than 1 percent after one second or more.

(5) The meter scale shall be similar in appearance to that of a standard VU meter. The scale length between 0 and 100 percent modulation markings shall be at least 2.3 inches. In addition to other markings a small marker for 133 percent modulation, designated as such, should be included for the purpose of testing the transmitter with 33.3 kHz swing.

(6) The indicated reading in percentage shall be accurate within  $\pm 5$  (based on 100 percent modulation) at any percentage of modulation up to 100.

(7) The frequency characteristic curve as measured at 50 percent modulation shall not depart from a straight line more than  $\pm \frac{1}{2}$  dB from 50 to 15,000 hertz. Distortion shall be kept to a minimum.

(8) The monitor shall not absorb appreciable power from the transmitter.

(9) Operation of the monitor shall have no adverse effect on the operation of the transmitter.

(10) General design, construction, and operation shall be in accordance with good engineering practice.

(c) Tests to be made for approval of television broadcast aural modulation monitors. The manufacturer of a monitor shall submit data on the following at the time of requesting approval:

(1) Audio frequency response of the monitor from 50 to 15,000 hertz in dB from the response at 400 hertz.

(2) Distortion in the response.

(3) Input signal power required.

(4) Permissible tolerance on input signal power to keep the meter reading correct within 5 percent units.

(5) Ballistic characteristics of the monitor indicator.

(d) Various other tests may be made or required depending on the character of the apparatus.

(e) Tests shall be conducted in such a manner as to approximate actual operating conditions as nearly as possible. The equipment shall be tested on the highest channel for which it is designed.

【§ 73.694 headnote and (a) revised eff. 4-30-80; III (80)-1】

§ 73.698 Tables.

TABLE I  
MINUTES TO DECIMAL PARTS OF A DEGREE

Minutes	Degrees	Minutes	Degrees
1	0.01667	31	0.51667
2	.03333	32	.53333
3	.05	33	.55
4	.06667	34	.56667
5	.08333	35	.58333
6	.10	36	.60
7	.11667	37	.61667
8	.13333	38	.63333
9	.15	39	.65
10	.16667	40	.66667
11	.18333	41	.68333
12	.20	42	.70
13	.21667	43	.71667
14	.23333	44	.73333
15	.25	45	.75
16	.26667	46	.76667
17	.28333	47	.78333
18	.30	48	.80
19	.31667	49	.81667
20	.33333	50	.83333
21	.35	51	.85
22	.36667	52	.86667
23	.38333	53	.88333
24	.40	54	.90
25	.41667	55	.91667
26	.43333	56	.93333
27	.45	57	.95
28	.46667	58	.96667
29	.48333	59	.98333
30	.50	60	1.00

SECONDS TO DECIMAL PARTS OF A DEGREE

Seconds	Degrees	Seconds	Degrees
1	0.00028	31	0.00861
2	.00056	32	.00889
3	.00083	33	.00917
4	.00111	34	.00944
5	.00139	35	.00972
6	.00167	36	.01
7	.00194	37	.01028
8	.00222	38	.01056
9	.0025	39	.01083
10	.00278	40	.01111
11	.00306	41	.01139
12	.00333	42	.01167
13	.00361	43	.01194
14	.00389	44	.01222
15	.00417	45	.0125
16	.00444	46	.01278
17	.00472	47	.01306
18	.005	48	.01333
19	.00528	49	.01361
20	.00556	50	.01389
21	.00583	51	.01417
22	.00611	52	.01444
23	.00639	53	.01472
24	.00667	54	.015
25	.00694	55	.01528
26	.00722	56	.01556
27	.0075	57	.01583
28	.00778	58	.01611
29	.00806	59	.01639
30	.00833	60	.01667

TABLE II  
MILES PER DEGREE OF LATITUDE DIFFERENCE

Middle latitude	Statute miles						
25 0	68.828	32 0	68.899	39 0	68.980	45 0	69.053
25 30	68.833	32 30	68.905	39 30	68.986	45 30	69.060
26 0	68.837	33 0	68.911	40 0	68.992	46 0	69.066
26 30	68.842	33 30	68.916	40 30	68.998	46 30	69.072
27 0	68.847	34 0	68.922	41 0	69.004	47 0	69.078
27 30	68.852	34 30	68.928	41 30	69.011	47 30	69.084
28 0	68.857	35 0	68.933	42 0	69.017	48 0	69.090
28 30	68.862	35 30	68.939	42 30	69.023	48 30	69.096
29 0	68.867	36 0	68.945	43 0	69.029	49 0	69.102
29 30	68.873	36 30	68.951	43 30	69.035	49 30	69.108
30 0	68.878	37 0	68.957	44 0	69.041	50 0	69.115
30 30	68.883	37 30	68.962	44 30	69.047		
31 0	68.889	38 0	68.968				
31 30	68.894	38 30	68.974				

TABLE III

Middle latitude degrees	Miles per degree of longitude difference (status miles)									
	25	26	27	28	29	30	31	32	33	34
<i>Minutes</i>										
0	62.728	62.211	61.675	61.120	60.547	59.955	59.345	58.716	58.070	57.406
1	62.720	62.202	61.666	61.111	60.537	59.945	59.335	58.706	58.059	57.395
2	62.712	62.193	61.657	61.101	60.528	59.935	59.324	58.695	58.048	57.384
3	62.703	62.184	61.648	61.092	60.517	59.925	59.314	58.684	58.037	57.373
4	62.694	62.176	61.639	61.082	60.508	59.915	59.303	58.674	58.026	57.362
5	62.686	62.167	61.630	61.073	60.498	59.905	59.293	58.663	58.015	57.350
6	62.677	62.158	61.621	61.064	60.488	59.895	59.282	58.652	58.004	57.339
7	62.669	62.149	61.611	61.054	60.478	59.885	59.272	58.642	57.994	57.328
8	62.660	62.140	61.602	61.045	60.469	59.875	59.262	58.631	57.983	57.316
9	62.652	62.132	61.593	61.035	60.459	59.865	59.252	58.620	57.972	57.305
10	62.644	62.123	61.584	61.026	60.449	59.855	59.241	58.610	57.961	57.294
11	62.635	62.114	61.575	61.017	60.440	59.845	59.231	58.599	57.950	57.283
12	62.627	62.105	61.566	61.007	60.430	59.835	59.221	58.588	57.939	57.271
13	62.618	62.096	61.557	60.997	60.420	59.825	59.210	58.578	57.928	57.260
14	62.609	62.088	61.547	60.988	60.410	59.814	59.200	58.567	57.917	57.249
15	62.601	62.079	61.538	60.979	60.400	59.804	59.189	58.556	57.906	57.238
16	62.592	62.070	61.529	60.969	60.390	59.794	59.179	58.546	57.895	57.227
17	62.583	62.061	61.520	60.959	60.381	59.784	59.168	58.535	57.884	57.215
18	62.575	62.052	61.510	60.950	60.371	59.774	59.158	58.524	57.873	57.204
19	62.567	62.044	61.501	60.940	60.361	59.764	59.147	58.514	57.862	57.192
20	62.559	62.035	61.492	60.931	60.352	59.754	59.137	58.503	57.851	57.181
21	62.550	62.026	61.483	60.921	60.342	59.744	59.127	58.492	57.840	57.170
22	62.541	62.017	61.474	60.912	60.332	59.734	59.116	58.481	57.829	57.159
23	62.532	62.008	61.465	60.902	60.322	59.723	59.106	58.470	57.818	57.147
24	62.524	61.999	61.455	60.893	60.312	59.713	59.095	58.460	57.807	57.136
25	62.515	61.990	61.446	60.883	60.302	59.703	59.085	58.449	57.796	57.125
26	62.507	61.981	61.437	60.874	60.292	59.693	59.074	58.438	57.785	57.113
27	62.498	61.972	61.428	60.865	60.282	59.683	59.064	58.428	57.774	57.102
28	62.489	61.963	61.419	60.855	60.273	59.672	59.054	58.417	57.763	57.090
29	62.480	61.955	61.409	60.845	60.263	59.662	59.043	58.406	57.752	57.079
30	62.472	61.946	61.400	60.836	60.253	59.652	59.033	58.396	57.741	57.068
31	62.463	61.937	61.391	60.826	60.243	59.642	59.022	58.385	57.729	57.057
32	62.455	61.928	61.381	60.817	60.233	59.632	59.012	58.374	57.718	57.045
33	62.446	61.918	61.372	60.807	60.223	59.622	59.001	58.363	57.707	57.034
34	62.438	61.909	61.363	60.798	60.213	59.611	58.991	58.352	57.696	57.022
35	62.429	61.900	61.354	60.788	60.203	59.601	58.980	58.341	57.685	57.011
36	62.420	61.891	61.344	60.778	60.194	59.591	58.970	58.331	57.674	56.999
37	62.412	61.882	61.335	60.768	60.184	59.581	58.960	58.320	57.663	56.988
38	62.403	61.874	61.325	60.759	60.174	59.571	58.949	58.309	57.652	56.977
39	62.395	61.865	61.316	60.750	60.164	59.561	58.939	58.298	57.641	56.966
40	62.386	61.856	61.307	60.740	60.154	59.550	58.928	58.287	57.629	56.954
41	62.377	61.847	61.298	60.730	60.144	59.540	58.917	58.277	57.618	56.943
42	62.369	61.838	61.289	60.721	60.134	59.530	58.907	58.266	57.607	56.931
43	62.360	61.829	61.279	60.711	60.124	59.520	58.896	58.255	57.596	56.919
44	62.351	61.820	61.270	60.701	60.114	59.510	58.886	58.244	57.585	56.908
45	62.342	61.811	61.261	60.692	60.104	59.500	58.875	58.233	57.574	56.897
46	62.334	61.802	61.252	60.682	60.094	59.489	58.865	58.223	57.563	56.885
47	62.325	61.793	61.242	60.672	60.084	59.479	58.854	58.212	57.552	56.871
48	62.316	61.784	61.233	60.663	60.074	59.468	58.843	58.201	57.541	56.863
49	62.308	61.775	61.223	60.654	60.065	59.458	58.833	58.190	57.529	56.851
50	62.299	61.766	61.214	60.644	60.055	59.448	58.822	58.179	57.518	56.840
51	62.290	61.757	61.205	60.634	60.045	59.438	58.812	58.168	57.507	56.829
52	62.281	61.748	61.195	60.625	60.035	59.427	58.801	58.157	57.496	56.817
53	62.272	61.739	61.186	60.615	60.025	59.417	58.790	58.147	57.485	56.805
54	62.264	61.730	61.176	60.605	60.015	59.406	58.780	58.136	57.473	56.794
55	62.255	61.721	61.167	60.595	60.005	59.396	58.769	58.125	57.462	56.782
56	62.246	61.712	61.158	60.586	59.995	59.386	58.759	58.114	57.451	56.771
57	62.237	61.702	61.148	60.576	59.985	59.376	58.748	58.103	57.440	56.759
58	62.228	61.693	61.139	60.566	59.975	59.365	58.737	58.092	57.429	56.748
59	62.220	61.684	61.129	60.557	59.965	59.355	58.727	58.081	57.418	56.737

TABLE III—Continued

Middle latitude degrees	Miles per degree of longitude difference (statute miles)														
	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
<i>Minutes</i>															
0	56.725	56.026	55.311	54.578	53.828	53.063	52.280	51.482	50.669	49.839	48.995	41.135	47.260	46.371	45.468
1	56.713	56.014	55.299	54.565	53.816	53.050	52.267	51.469	50.655	49.825	48.980	48.120	47.245	46.356	45.453
2	56.702	56.002	55.286	54.553	53.803	53.037	52.254	51.455	50.641	49.811	48.966	48.106	47.231	46.341	45.438
3	56.690	55.991	55.274	54.541	53.791	53.024	52.241	51.442	50.627	49.797	48.952	48.091	47.216	46.326	45.422
4	56.678	55.979	55.262	54.528	53.778	53.011	52.229	51.429	50.614	49.783	48.937	48.077	47.201	46.311	45.407
5	56.667	55.967	55.250	54.516	53.765	52.998	52.215	51.415	50.600	49.769	48.923	48.063	47.187	46.296	45.392
6	56.655	55.955	55.238	54.503	53.753	52.985	52.201	51.402	50.586	49.755	48.909	48.048	47.172	46.281	45.377
7	56.644	55.943	55.226	54.491	53.740	52.972	52.188	51.388	50.573	49.741	48.895	48.034	47.158	46.266	45.362
8	56.632	55.931	55.213	54.479	53.727	52.959	52.175	51.375	50.559	49.727	48.881	48.019	47.143	46.252	45.346
9	56.621	55.920	55.201	54.466	53.715	52.946	52.162	51.361	50.545	49.713	48.867	48.005	47.128	46.237	45.331
10	56.610	55.908	55.189	54.454	53.702	52.933	52.149	51.348	50.531	49.699	48.852	47.990	47.114	46.222	45.317
11	56.598	55.896	55.177	54.441	53.689	52.920	52.135	51.335	50.517	49.685	48.838	47.975	47.099	46.207	45.301
12	56.586	55.884	55.165	54.429	53.677	52.907	52.122	51.321	50.504	49.671	48.824	47.961	47.084	46.192	45.286
13	56.575	55.872	55.153	54.417	53.664	52.894	52.109	51.307	50.490	49.657	48.809	47.946	47.069	46.177	45.270
14	56.563	55.860	55.141	54.404	53.651	52.881	52.096	51.294	50.476	49.643	48.795	47.932	47.054	46.162	45.255
15	56.552	55.849	55.128	54.392	53.639	52.868	52.082	51.280	50.462	49.629	48.781	47.917	47.040	46.147	45.240
16	56.540	55.837	55.116	54.380	53.626	52.855	52.069	51.267	50.449	49.615	48.767	47.903	47.025	46.132	45.225
17	56.529	55.825	55.104	54.367	53.613	52.842	52.056	51.253	50.435	49.601	48.752	47.888	47.010	46.117	45.210
18	56.517	55.813	55.093	54.354	53.601	52.830	52.043	51.240	50.421	49.587	48.738	47.874	46.995	46.102	45.194
19	56.505	55.802	55.080	54.342	53.588	52.817	52.030	51.226	50.408	49.573	48.724	47.859	46.980	46.087	45.179
20	56.493	55.790	55.068	54.330	53.575	52.804	52.016	51.213	50.394	49.559	48.709	47.845	46.966	46.072	45.164
21	56.482	55.778	55.056	54.317	53.562	52.791	52.003	51.199	50.380	49.545	48.695	47.830	46.951	46.057	45.149
22	56.470	55.766	55.043	54.304	53.549	52.778	51.990	51.185	50.366	49.531	48.681	47.816	46.936	46.042	45.134
23	56.459	55.754	55.031	54.292	53.536	52.765	51.977	51.172	50.352	49.517	48.667	47.801	46.921	46.027	45.118
24	56.447	55.742	55.019	54.280	53.524	52.752	51.963	51.159	50.338	49.503	48.653	47.787	46.906	46.012	45.103
25	56.435	55.730	55.007	54.267	53.511	52.739	51.950	51.145	50.325	49.489	48.639	47.772	46.891	45.997	45.088
26	56.424	55.718	54.995	54.255	53.498	52.726	51.936	51.132	50.311	49.475	48.623	47.758	46.877	45.982	45.073
27	56.412	55.706	54.983	54.242	53.486	52.713	51.923	51.118	50.297	49.461	48.609	47.743	46.862	45.967	45.057
28	56.401	55.694	54.970	54.230	53.473	52.700	51.910	51.104	50.283	49.447	48.595	47.729	46.847	45.952	45.042
29	56.389	55.682	54.958	54.217	53.460	52.687	51.897	51.091	50.270	49.433	48.581	47.714	46.832	45.937	45.026
30	56.378	55.671	54.946	54.205	53.448	52.674	51.883	51.077	50.256	49.419	48.567	47.699	46.818	45.922	45.011
31	56.366	55.659	54.934	54.192	53.435	52.661	51.870	51.064	50.242	49.405	48.552	47.685	46.803	45.906	44.996
32	56.354	55.647	54.922	54.180	53.422	52.648	51.857	51.050	50.228	49.391	48.538	47.671	46.788	45.891	44.981
33	56.343	55.635	54.909	54.167	53.409	52.635	51.843	51.036	50.214	49.377	48.524	47.656	46.773	45.876	44.965
34	56.331	55.623	54.897	54.155	53.396	52.622	51.830	51.023	50.200	49.362	48.509	47.641	46.759	45.861	44.950
35	56.319	55.611	54.885	54.142	53.384	52.608	51.817	51.010	50.186	49.348	48.494	47.627	46.744	45.846	44.935
36	56.308	55.599	54.872	54.130	53.371	52.595	51.804	50.996	50.173	49.334	48.480	47.612	46.729	45.831	44.920
37	56.296	55.587	54.861	54.117	53.358	52.582	51.790	50.982	50.159	49.320	48.466	47.597	46.714	45.816	44.904
38	56.284	55.575	54.848	54.104	53.345	52.569	51.777	50.968	50.145	49.306	48.452	47.583	46.699	45.801	44.889
39	56.273	55.563	54.836	54.092	53.332	52.556	51.763	50.955	50.131	49.292	48.437	47.568	46.684	45.786	44.874
40	56.261	55.551	54.824	54.080	53.320	52.543	51.750	50.942	50.117	49.277	48.423	47.553	46.669	45.771	44.858
41	56.249	55.539	54.811	54.067	53.307	52.530	51.736	50.928	50.103	49.263	48.409	47.539	46.654	45.756	44.843
42	56.238	55.527	54.799	54.054	53.294	52.517	51.723	50.914	50.089	49.249	48.395	47.524	46.639	45.741	44.827
43	56.226	55.515	54.787	54.042	53.281	52.504	51.710	50.901	50.076	49.235	48.380	47.509	46.624	45.726	44.812
44	56.214	55.503	54.775	54.030	53.268	52.491	51.697	50.887	50.062	49.221	48.365	47.495	46.609	45.710	44.797
45	56.202	55.491	54.762	54.017	53.255	52.478	51.684	50.873	50.048	49.207	48.351	47.480	46.595	45.695	44.782
46	56.191	55.479	54.750	54.005	53.243	52.465	51.670	50.860	50.034	49.193	48.336	47.465	46.580	45.680	44.766
47	56.179	55.467	54.738	53.992	53.230	52.452	51.657	50.846	50.020	49.179	48.322	47.451	46.565	45.665	44.751
48	56.167	55.455	54.726	53.979	53.217	52.438	51.643	50.833	50.006	49.165	48.308	47.436	46.551	45.650	44.736
49	56.156	55.443	54.713	53.967	53.204	52.425	51.630	50.819	49.992	49.151	48.293	47.421	46.536	45.635	44.720
50	56.144	55.431	54.701	53.955	53.191	52.412	51.616	50.805	49.978	49.136	48.279	47.407	46.521	45.620	44.705
51	56.132	55.419	54.688	53.942	53.178	52.399	51.603	50.792	49.965	49.122	48.265	47.392	46.506	45.604	44.689
52	56.120	55.407	54.676	53.929	53.165	52.386	51.590	50.778	49.951	49.108	48.250	47.377	46.491	45.589	44.674
53	56.109	55.395	54.664	53.917	53.152	52.373	51.576	50.764	49.937	49.094	48.236	47.363	46.476	45.574	44.659
54	56.097	55.383	54.652	53.904	53.140	52.359	51.563	50.751	49.923	49.080	48.222	47.348	46.461	45.559	44.643
55	56.085	55.371	54.639	53.891	53.127	52.346	51.549	50.737	49.909	49.066	48.207	47.333	46.446	45.544	44.628
56	56.073	55.359	54.627	53.879	53.114	52.333	51.536	50.723	49.895	49.051	48.192	47.319	46.431	45.529	44.613
57	56.061	55.347	54.614	53.867	53.101	52.320	51.523	50.710	49.881	49.037	48.178	47.304	46.416	45.514	44.597
58	56.050	55.335	54.602	53.854	53.088	52.307	51.509	50.696	49.867	49.023	48.163	47.289	46.401	45.499	44.582
59	56.038	55.323	54.590	53.841	53.075	52.294	51.496	50.682	49.853	49.009	48.149	47.275	46.386	45.484	44.566

TABLE IV

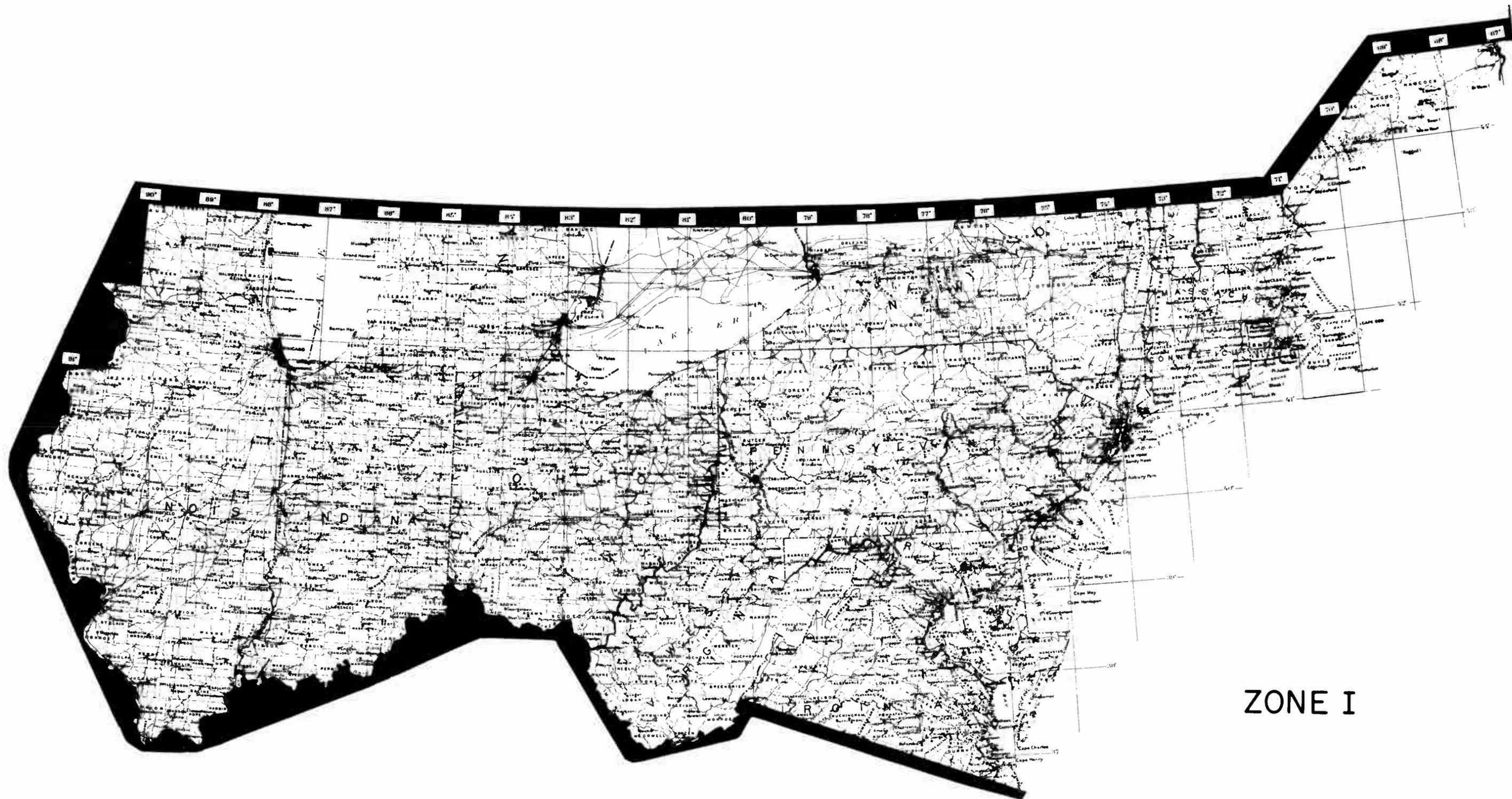
(1) Channel	(2) 20 miles (1F beat)	(3) 20 miles (inter- modulation)	(4) 55 miles (adjacent channel)	(5) 60 miles (oscillator)	(6) 60 miles (sound image)	(7) 75 miles (picture image)
14		22	16-19	15	21	29
15		2e	17-20	14,16	22	28
16		24	14, 18-21	15, 17	23	30
17		25	14-15, 19-22	16, 18	24	31
18		26	14-16, 20-23	17, 19	25	32
19		27	14-17, 21-24	18, 20	26	33
20		28	15-18, 22-25	19, 21	27	34
21		29	16-19, 23-26	20, 22	28, 14	35
22		30, 14	17-20, 24-27	21, 23	29, 15	36
23		31, 15	18-21, 25-28	22, 24	30, 16	37
24		32, 16	19-22, 26-29	23, 25	31, 17	38
25		33, 17	20-23, 27-30	24, 26	32, 18	39
26		34, 18	21-24, 28-31	25, 27	33, 19	40
27		35, 19	22-25, 29-32	26, 28	34, 20	41
28		36, 20	23-26, 30-33	27, 29	35, 21	42, 14
29		37, 21	24-27, 31-34	28, 30	36, 22	43, 15
30		38, 22	25-28, 32-35	29, 31	37, 23	44, 16
31		39, 23	26-29, 33-36	30, 32	38, 24	45, 17
32		40, 24	27-30, 31-37	31, 33	39, 25	46, 18
33		41, 25	28-31, 35-38	32, 34	40, 26	47, 19
34		42, 26	29-32, 36-39	33, 35	41, 27	48, 20
35		43, 27	30-33, 37-40	34, 36	42, 28	49, 21
36		44, 28	31-34, 38-41	35, 37	43, 29	50, 22
37		45, 29	32-35, 39-42	36, 38	44, 30	51, 23
38		46, 30	33-36, 40-43	37, 39	45, 31	52, 24
39		47, 31	34-37, 41-44	38, 40	46, 32	53, 25
40		48, 32	35-38, 42-45	39, 41	47, 33	54, 26
41		49, 33	36-39, 43-46	40, 42	48, 34	55, 27
42		50, 34	37-40, 44-47	41, 43	49, 35	56, 28
43		51, 35	38-41, 45-48	42, 44	50, 36	57, 29
44		52, 36	39-42, 46-49	43, 45	51, 37	58, 30
45		53, 37	40-43, 47-50	44, 46	52, 38	59, 31
46		54, 38	41-44, 48-51	45, 47	53, 39	60, 32
47		55, 39	42-45, 49-52	46, 48	54, 40	61, 33
48		56, 40	43-46, 50-53	47, 49	55, 41	62, 34
49		57, 41	44-47, 51-54	48, 50	56, 42	63, 35
50		58, 42	45-48, 52-55	49, 51	57, 43	64, 36
51		59, 43	46-49, 53-56	50, 52	58, 44	65, 37
52		60, 44	47-50, 54-57	51, 53	59, 45	66, 38
53		61, 45	48-51, 55-58	52, 54	60, 46	67, 39
54		62, 46	49-52, 56-59	53, 55	61, 47	68, 40
55		63, 47	50-53, 57-60	54, 56	62, 48	69, 41
56		64, 48	51-54, 58-61	55, 57	63, 49	70, 42
57		65, 49	52-55, 59-62	56, 58	64, 50	71, 43
58		66, 50	53-56, 60-63	57, 59	65, 51	72, 44
59		67, 51	54-57, 61-64	58, 60	66, 52	73, 45
60		68, 52	55-58, 62-65	59, 61	67, 53	74, 46
61		69, 53	56-59, 63-66	60, 62	68, 54	75, 47
62		70, 54	57-60, 64-67	61, 63	69, 55	76, 48
63		71, 55	58-61, 65-68	62, 64	70, 56	77, 49
64		72, 56	59-62, 66-69	63, 65	71, 57	78, 50
65		73, 57	60-63, 67-70	64, 66	72, 58	79, 51
66		74, 58	61-64, 68-71	65, 67	73, 59	80, 52
67		75, 59	62-65, 69-72	66, 68	74, 60	81, 53
68		76, 60	63-66, 70-73	67, 69	75, 61	82, 54
69		77, 61	64-67, 71-74	68, 70	76, 62	83, 55
70		78, 62	65-68, 72-75	69, 71	77, 63	56
71		79, 63	66-69, 73-76	70, 72	78, 64	57
72		80, 64	67-70, 74-77	71, 73	79, 65	58
73		81, 65	68-71, 75-78	72, 74	80, 66	59
74		82, 66	69-72, 76-79	73, 75	81, 67	60
75		83, 67	70-73, 77-80	74, 76	82, 68	61
76		68	71-74, 78-81	75, 77	83, 69	62
77		69	72-75, 79-82	76, 78	70	63
78		70	73-76, 80-83	77, 79	71	64
79		71	74-77, 81-83	78, 80	72	65
80		72	75-78, 82-83	79, 81	73	66
81		73	76-79, 83	80, 82	74	67
82		74	77-80	81, 83	75	68
83		75	78-81	82	76	69

NOTE: The parenthetical reference beneath the mileage figures in columns 2 through 7, inclusive, indicate, in abbreviated form, the bases for the required mileage separations. For a discussion of these bases, see the "Sixth Report and Order" of the Commission (FCC 52-294). The hyphenated numbers listed in column (3) are both inclusive.

§ 73.699 TV engineering charts.

This section consists of the following Figures 1-5, 5a, 6-10, 10a-10e, 11-12, 13-16, and "slider" for use with Figures 9 and 10."

[Effectiveness of § 73.699 Figures 10d and 10e STAYED UNTIL FURTHER ORDER OF THE COMMISSION.]

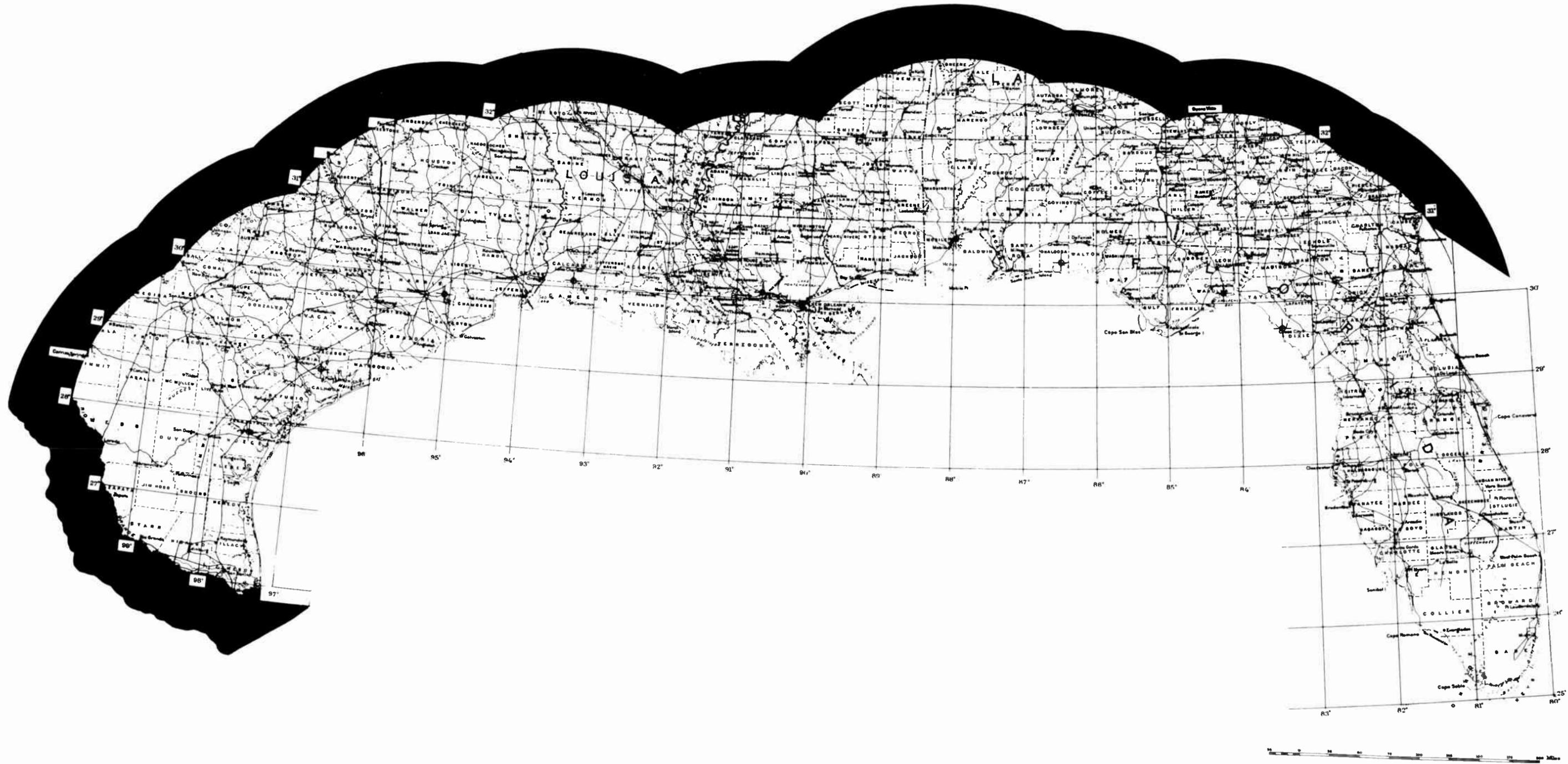


ZONE I

Feb. 1954

FCC § 73.699, FIGURE 1



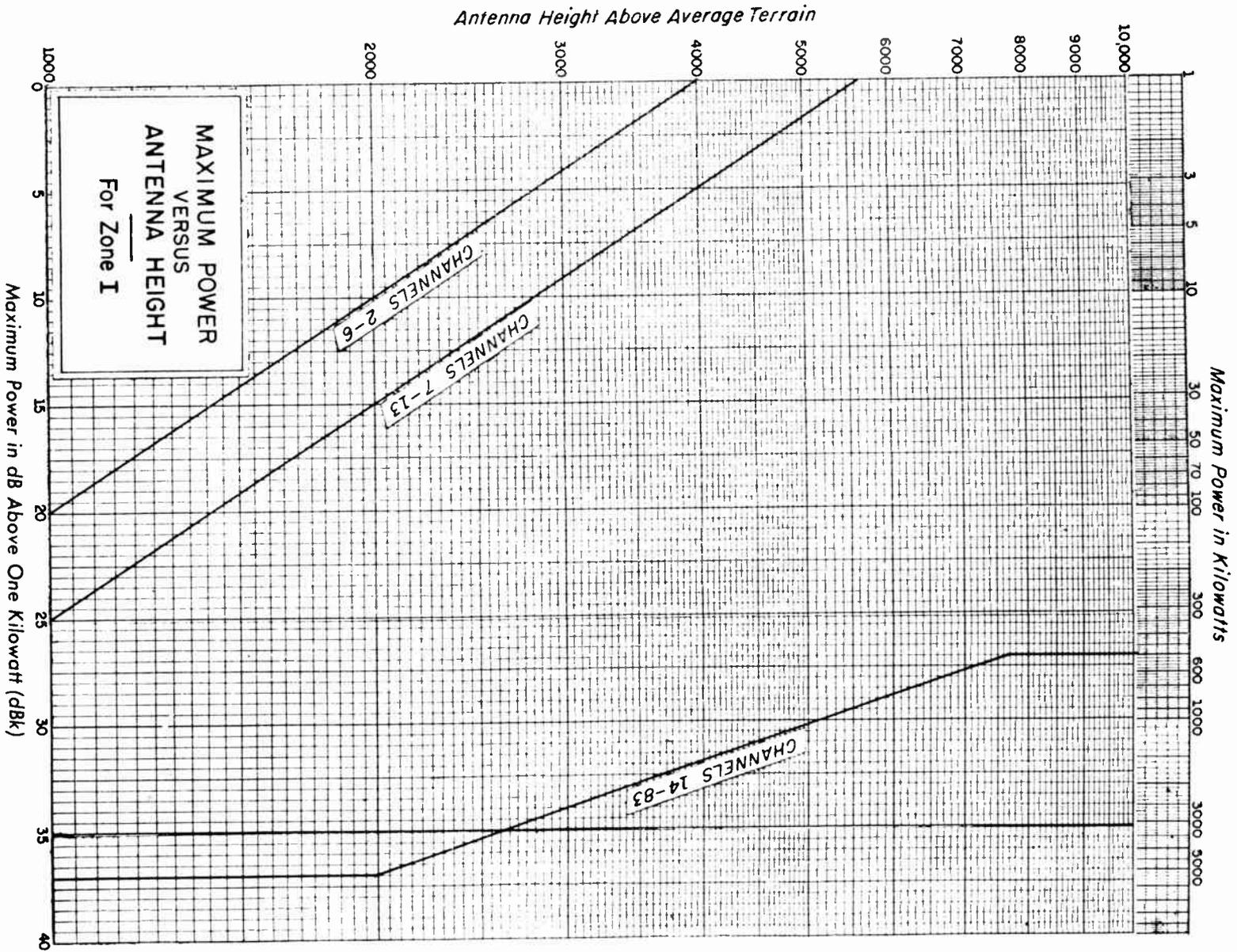


**ZONE III**

FCC § 73.699, FIGURE 2

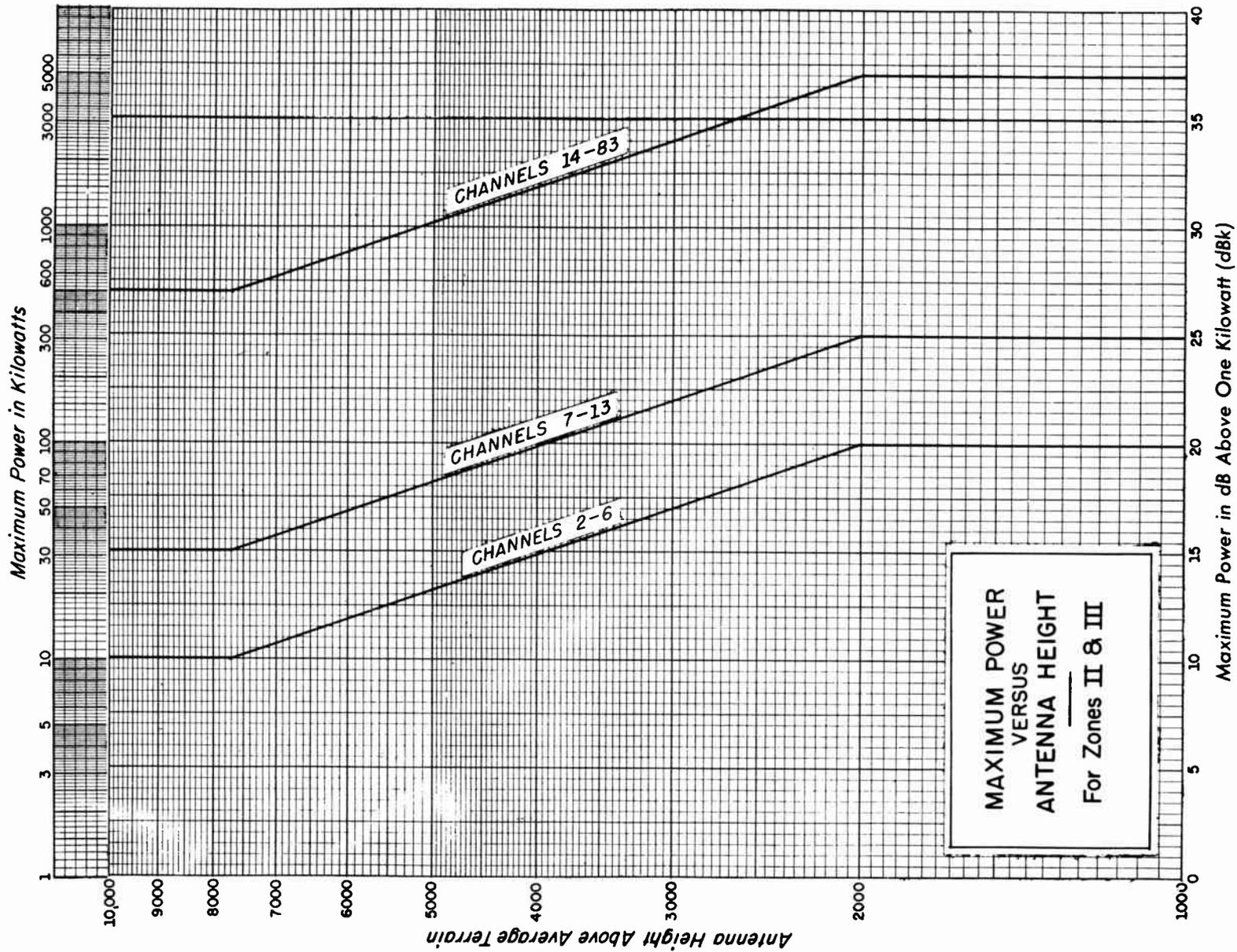
MARCH 1957





FCC § 73.639, FIGURE 3



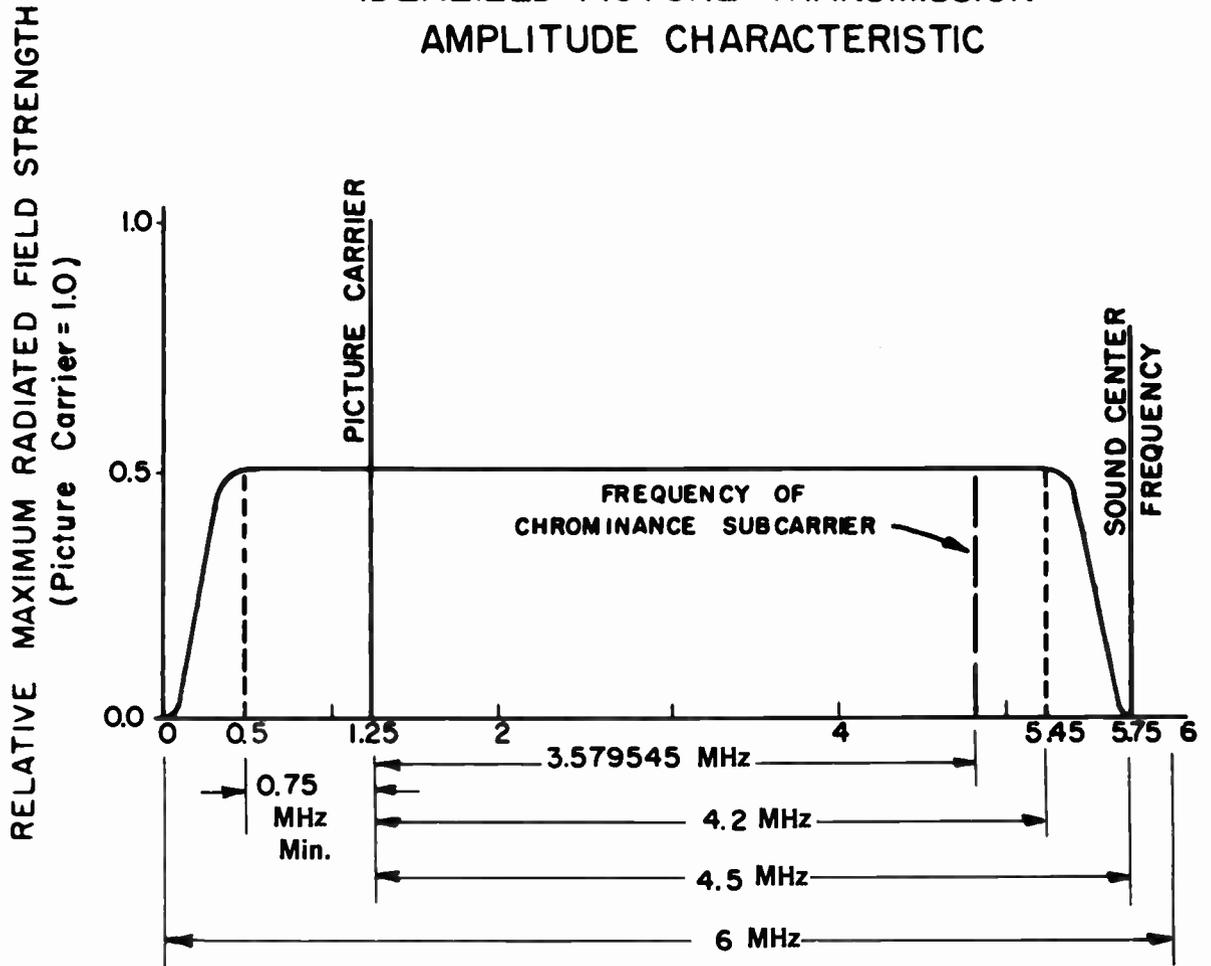


MAXIMUM POWER  
VERSUS  
ANTENNA HEIGHT  
For Zones II & III

FCC § 73.699, FIGURE 4



# IDEALIZED PICTURE TRANSMISSION AMPLITUDE CHARACTERISTIC

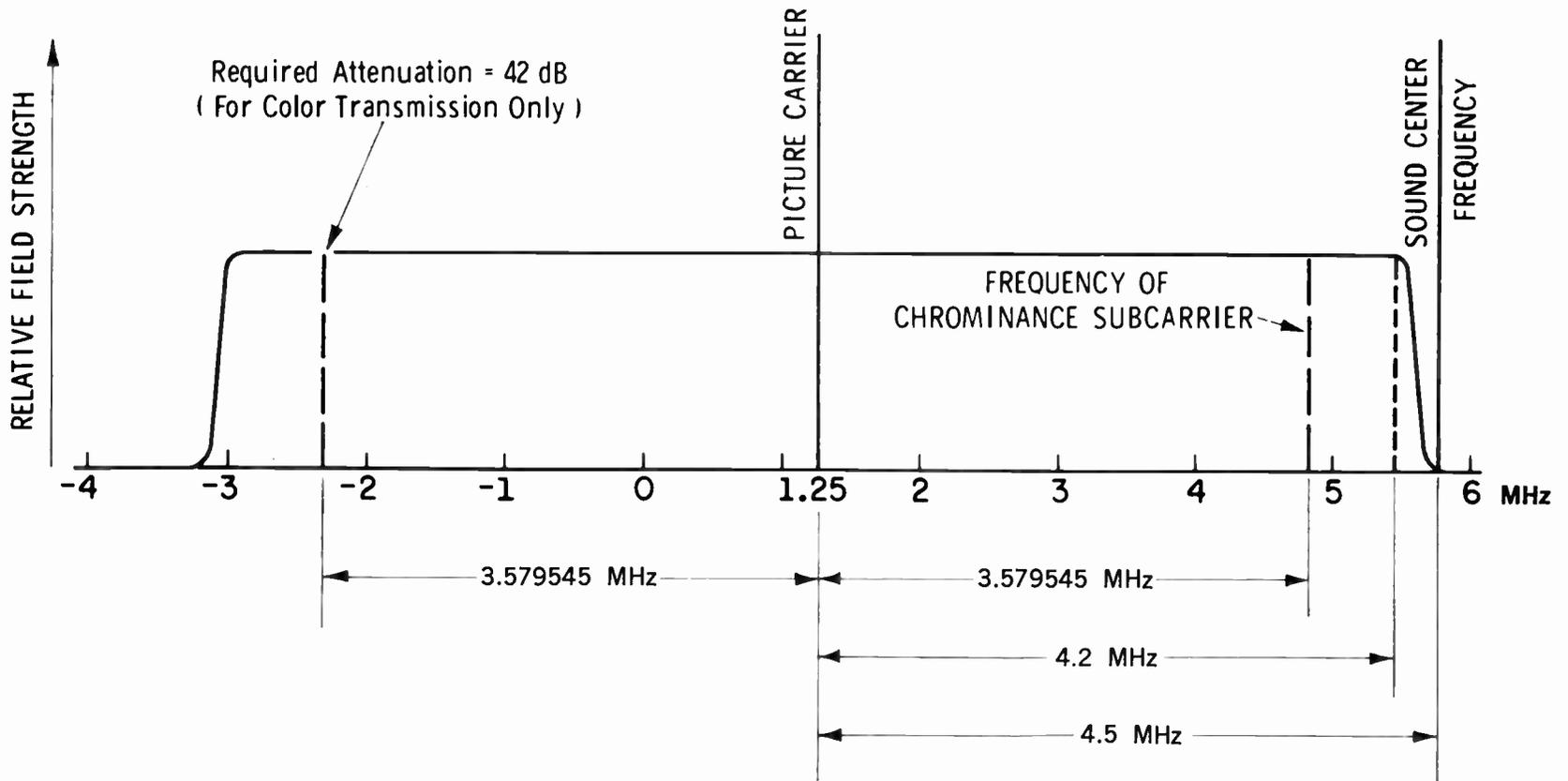


Note: Not drawn to scale

FCC § 73.699, FIGURE 5

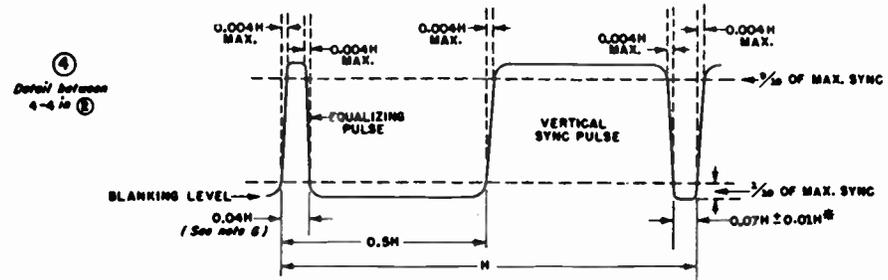
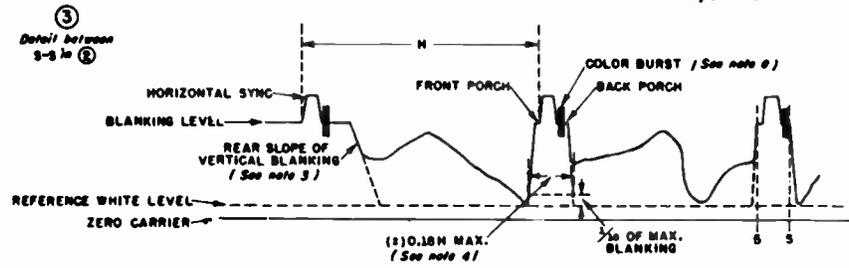
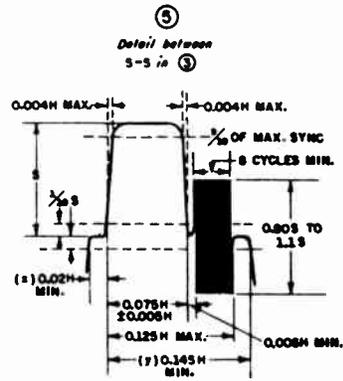
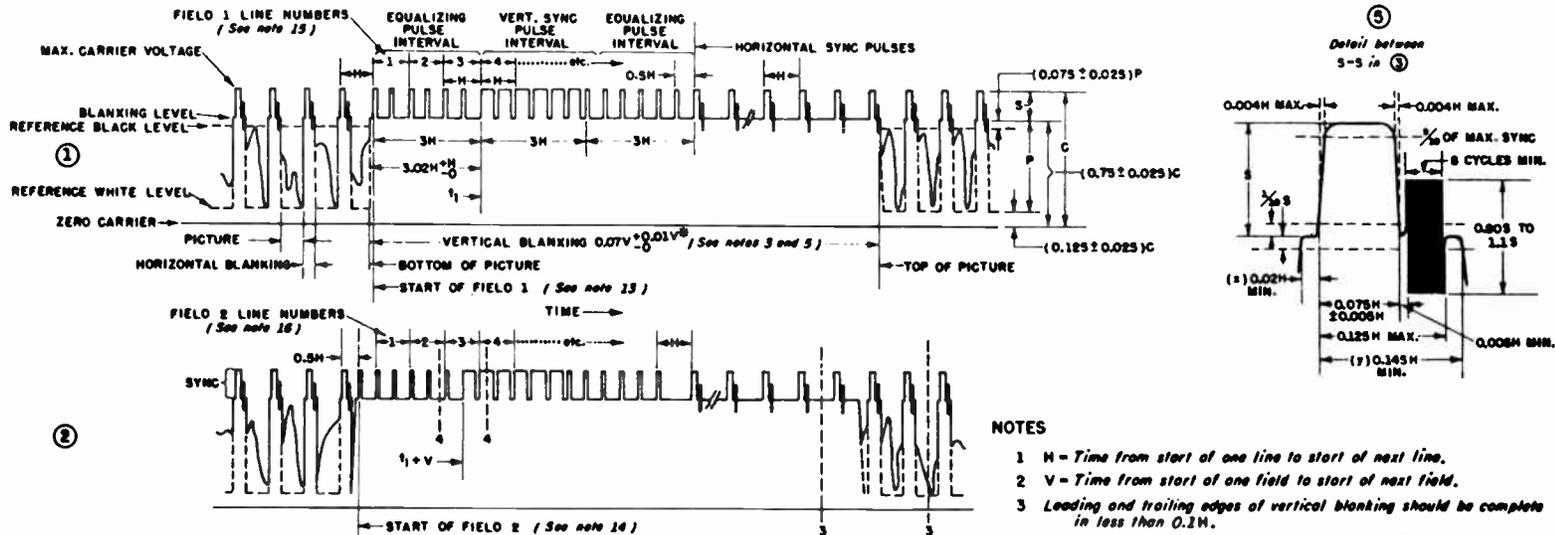


### IDEALIZED PICTURE TRANSMISSION AMPLITUDE CHARACTERISTIC





TELEVISION SYNCHRONIZING WAVEFORM  
FOR COLOR TRANSMISSION

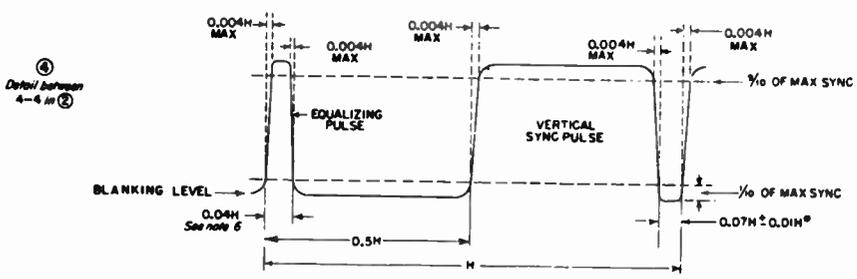
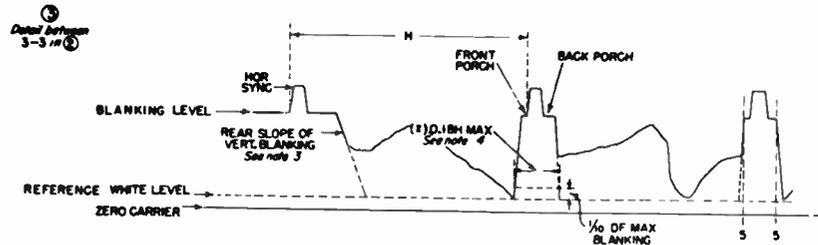
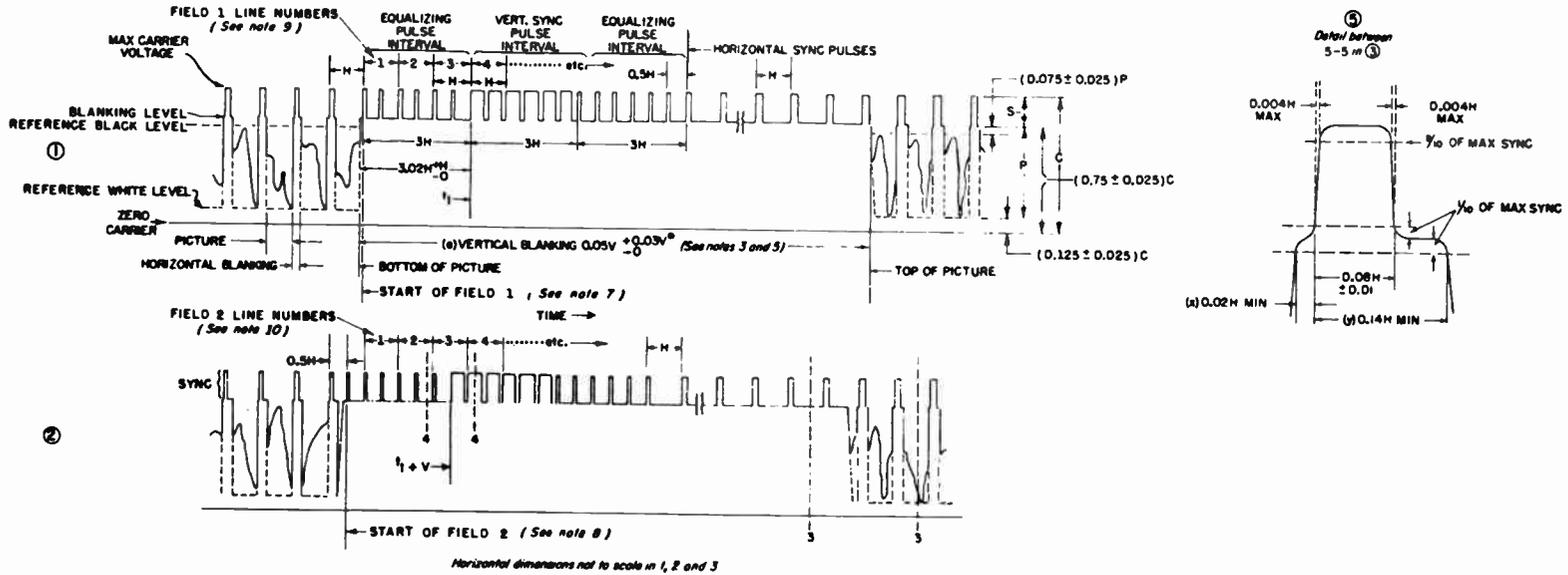


NOTES

- 1 M - Time from start of one line to start of next line.
- 2 V - Time from start of one field to start of next field.
- 3 Leading and trailing edges of vertical blanking should be complete in less than 0.1M.
- 4 Leading and trailing slopes of horizontal blanking must be steep enough to preserve minimum and maximum values of (x+y) and (z) under all conditions of picture content.
- \*5 Dimensions marked with asterisk indicate that tolerances given are permitted only for long time variations and not for successive cycles.
- 6 Equalizing pulse duration must be between 0.45 and 0.55 of the duration of the horizontal synchronizing pulse duration.
- 7 Color burst follows each horizontal pulse, but is omitted following the equalizing pulses and during the broad vertical pulses.
- 8 Color bursts to be omitted during monochrome transmission.
- 9 The burst frequency shall be 3.579545 MHz. The tolerance on the frequency shall be ±10 hertz with a maximum rate of change of frequency not to exceed 1/20 hertz per second.
- 10 The horizontal scanning frequency shall be 33 1/3 times the burst frequency.
- 11 The dimensions specified for the burst determine the times of starting and stopping the burst, but not its phase. The color burst consists of amplitude modulation of a continuous sine wave.
- 12 Dimension "P" represents the peak excursion of the luminance signal from blanking level, but does not include the chrominance signal. Dimension "S" is the sync amplitude above blanking level. Dimension "C" is the peak carrier amplitude.
- 13 Start of Field 1 is defined by a whole line between first equalizing pulse and preceding M sync pulses.
- 14 Start of Field 2 is defined by a half line between first equalizing pulse and preceding M sync pulses.
- 15 Field 1 line numbers start with first equalizing pulse in Field 1.
- 16 Field 2 line numbers start with second equalizing pulse in Field 2.
- 17 Refer to text for further explanations and tolerances.
- 18 During color transmissions, the chrominance component of the picture signal may penetrate the synchronizing region and the color burst penetrates the picture region.

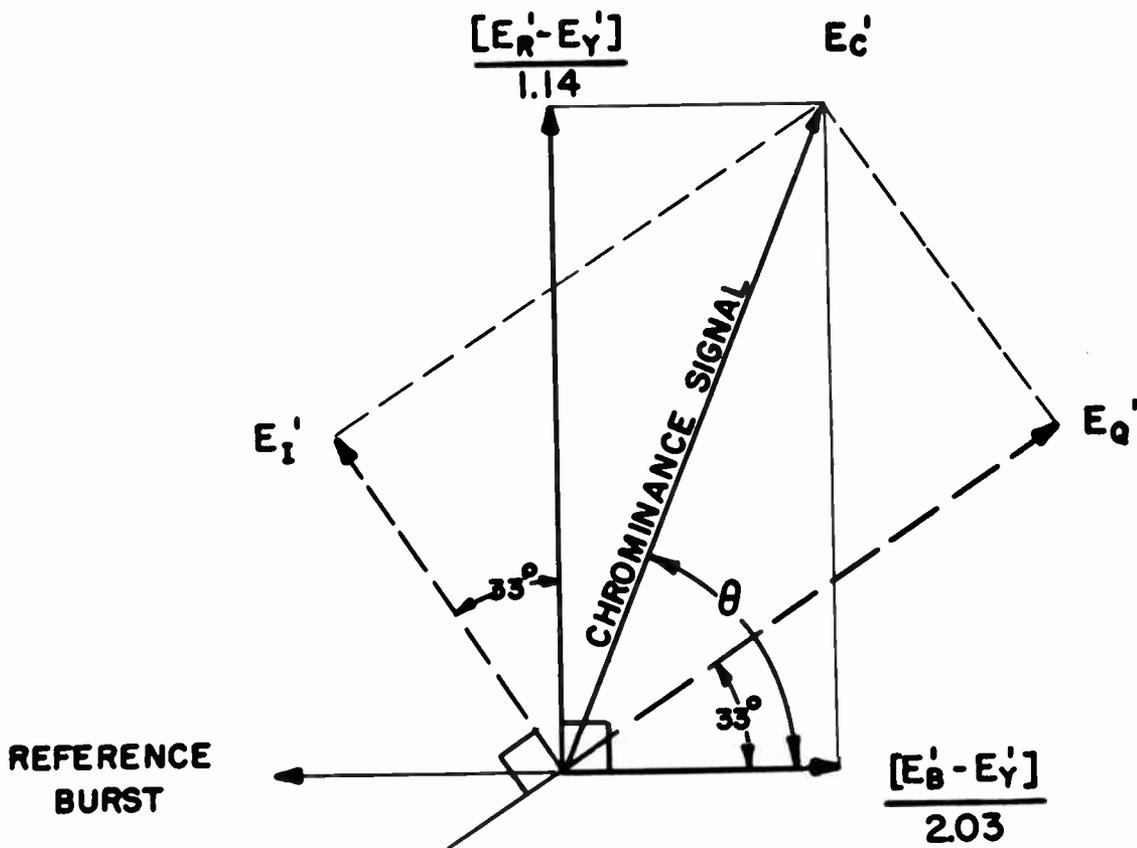


TELEVISION SYNCHRONIZING WAVEFORM  
FOR MONOCHROME TRANSMISSION ONLY



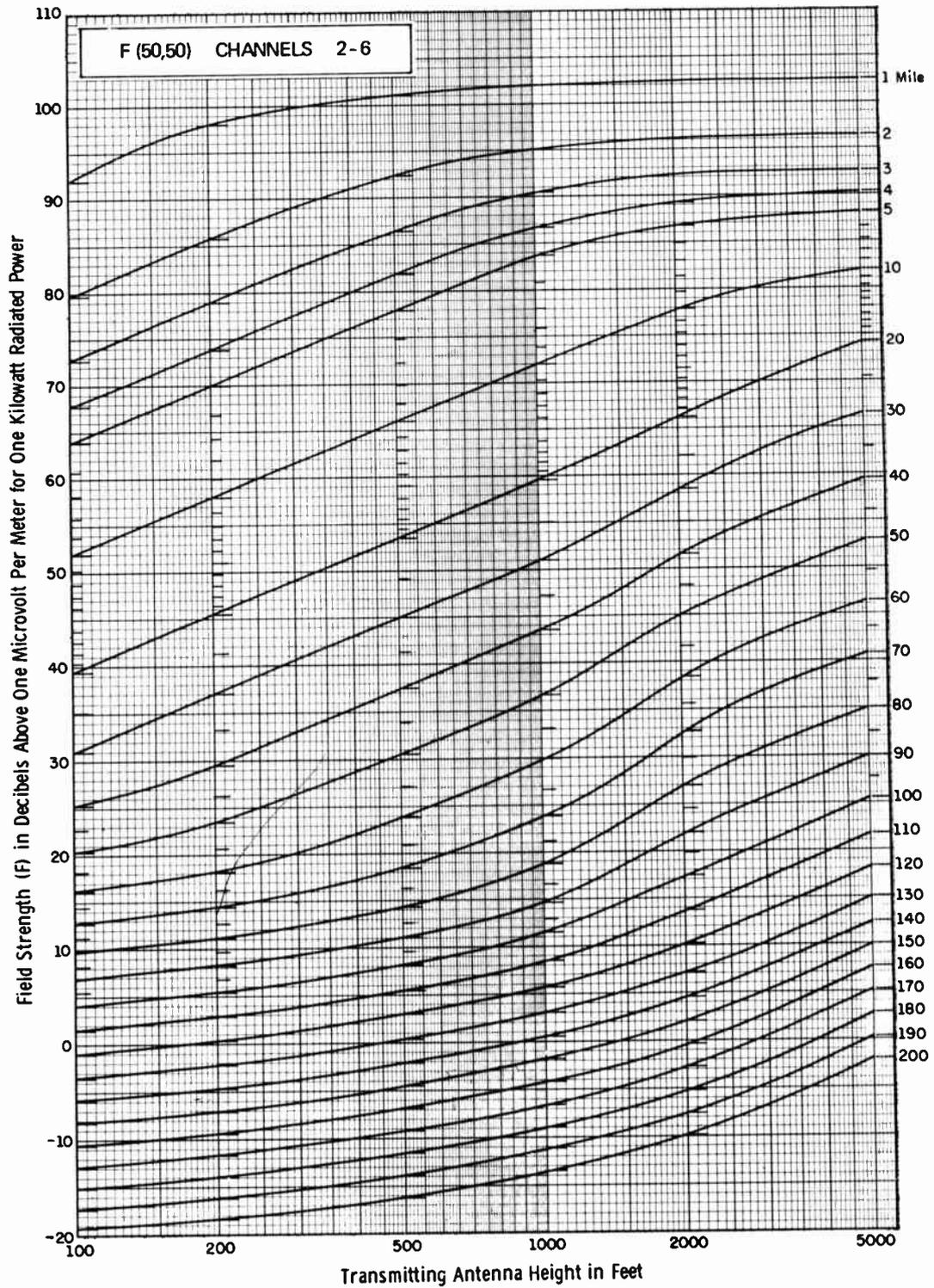
- NOTES**
- 1 H = Time from start of one line to start of next line.
  - 2 V = Time from start of one field to start of next field.
  - 3 Leading and trailing edges of vertical blanking should be complete in less than 0.1H.
  - 4 Leading and trailing slopes of horizontal blanking must be steep enough to preserve minimum and maximum values of (x+y) and (x) under all conditions of picture content.
  - \* 5 Dimensions marked with asterisk indicate that tolerances given are permitted only for long time variations and not for successive cycles.
  - 6 Equalizing pulse duration must be between 0.45 and 0.55 of the duration of the horizontal synchronizing pulse duration.
  - 7 Start of Field 1 is defined by a whole line between first equalizing pulse, and preceding H sync pulses.
  - 8 Start of Field 2 is defined by a half line between first equalizing pulse and preceding H sync pulses.
  - 9 Field 1 line numbers start with first equalizing pulse in Field 1.
  - 10 Field 2 line numbers start with second equalizing pulse in Field 2.
  - 11 Refer to text for further explanations and tolerances.





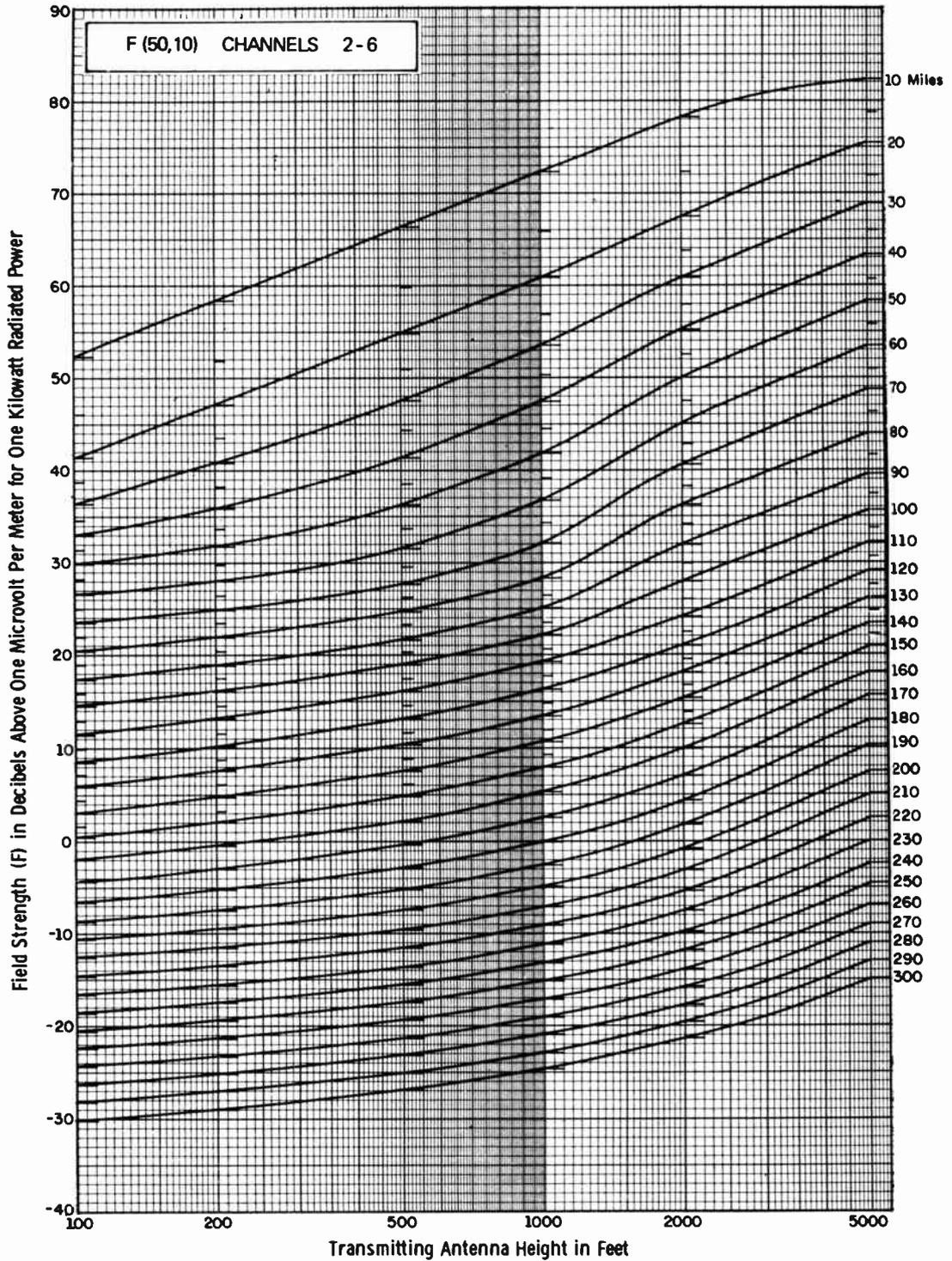
FCC § 73.699, FIGURE 8





TELEVISION CHANNELS 2-6  
 ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
 OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 50 PERCENT  
 OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 30 FEET

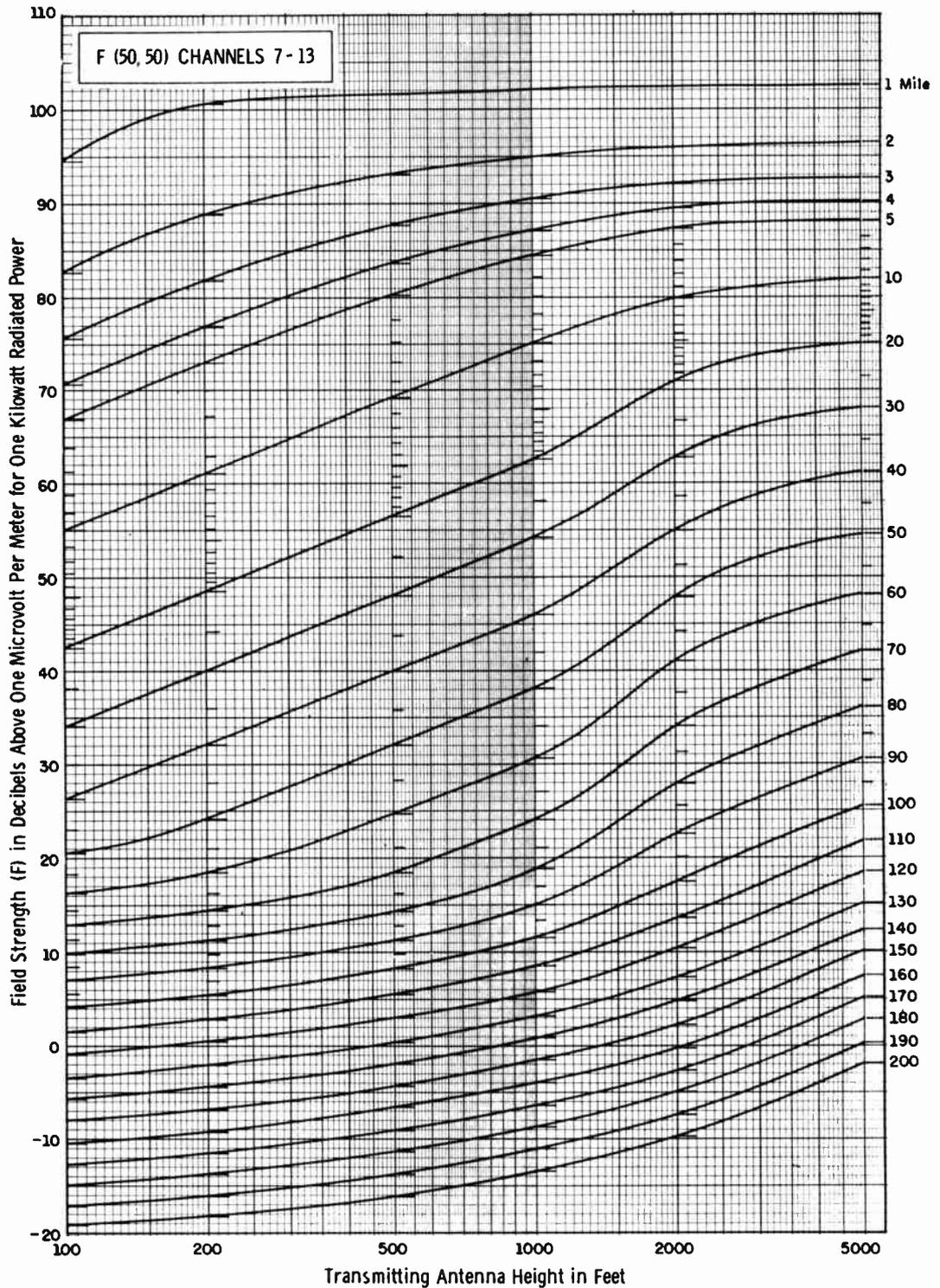




TELEVISION CHANNELS 2-6  
 ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
 OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 10 PERCENT  
 OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 30 FEET

FCC §73.699 FIGURE 9a

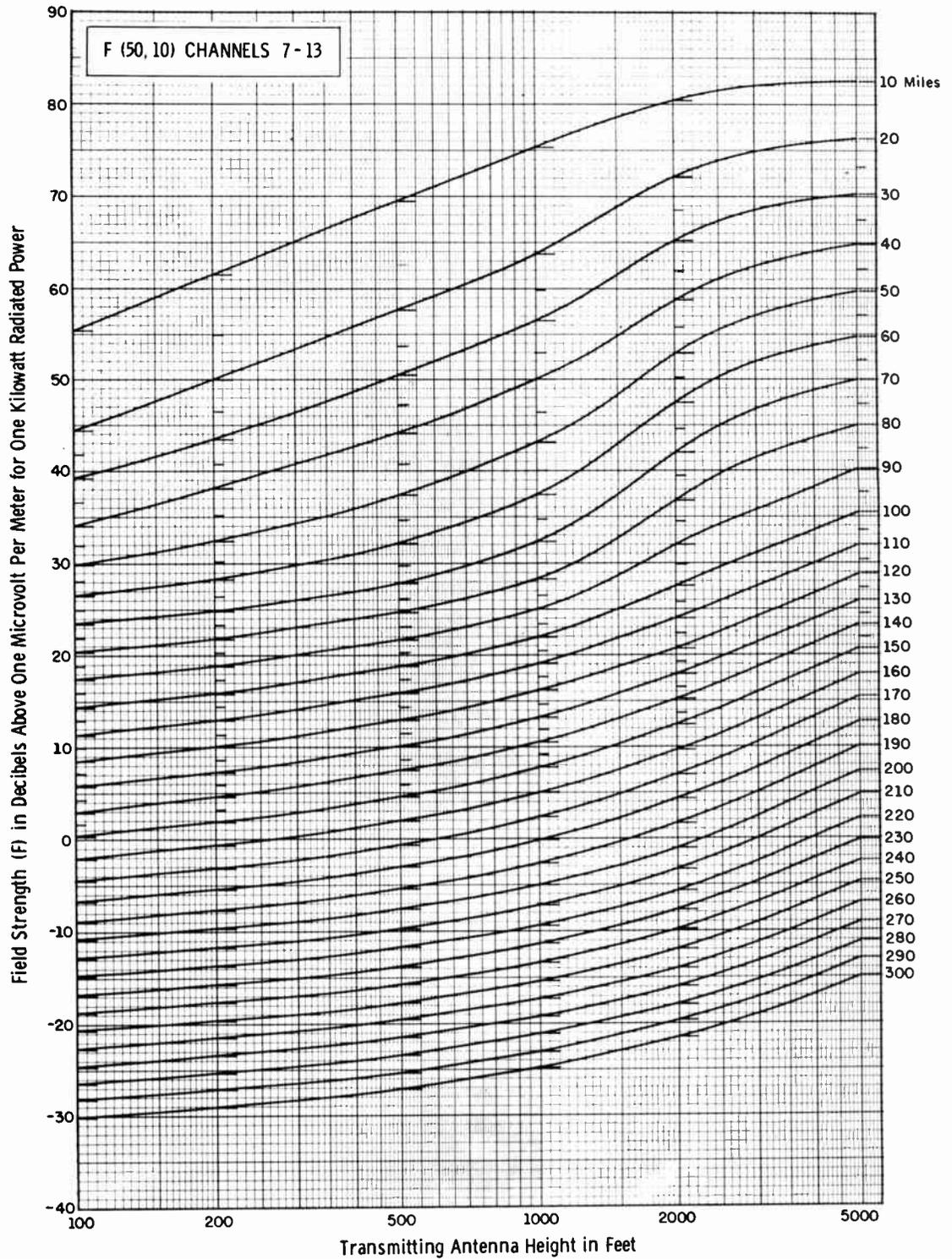




TELEVISION CHANNELS 7 - 13  
 ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
 OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 50 PERCENT  
 OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 30 FEET

FCC §73.699 FIGURE 10

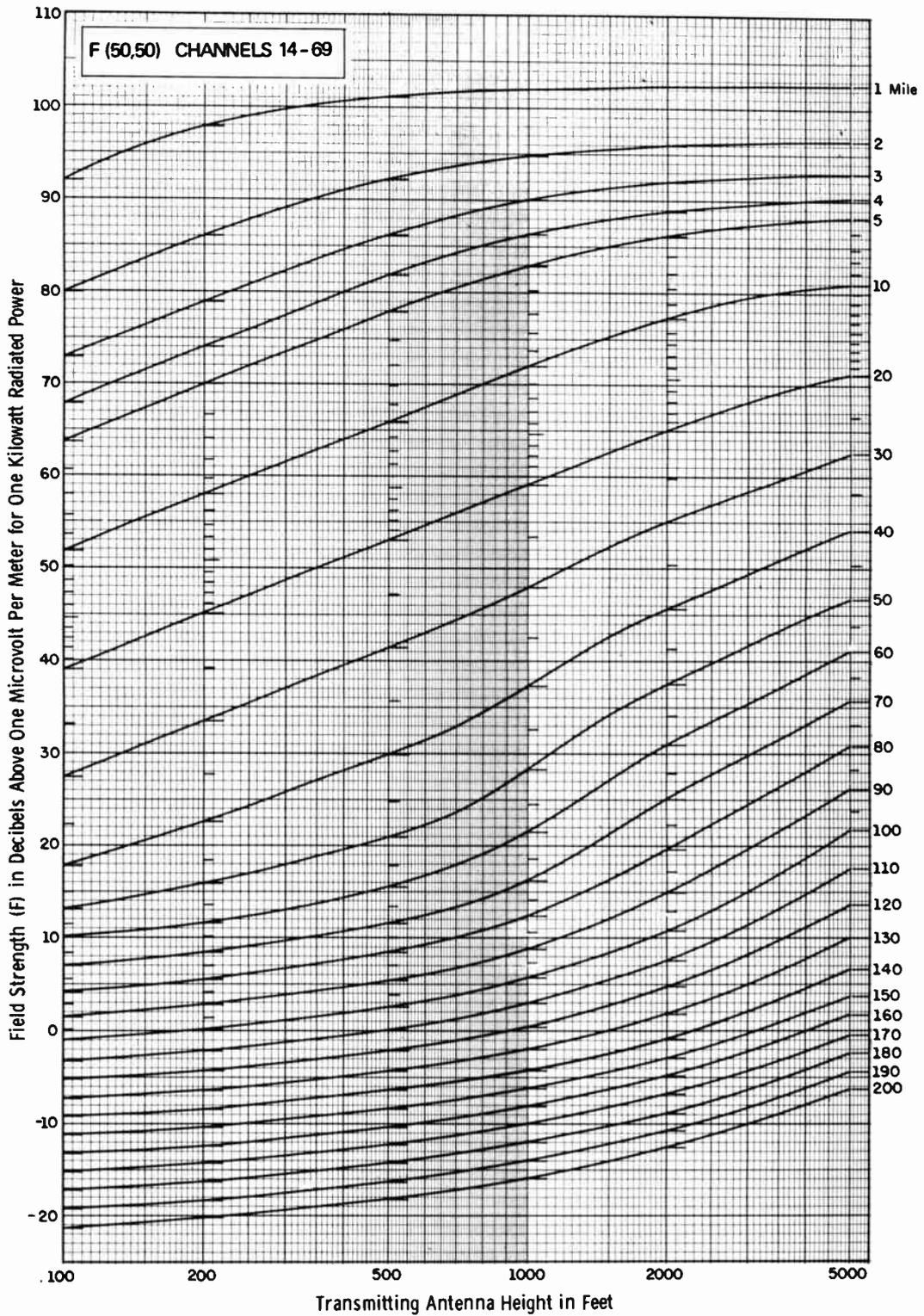




TELEVISION CHANNELS 7 - 13  
 ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
 OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 10 PERCENT  
 OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 30 FEET

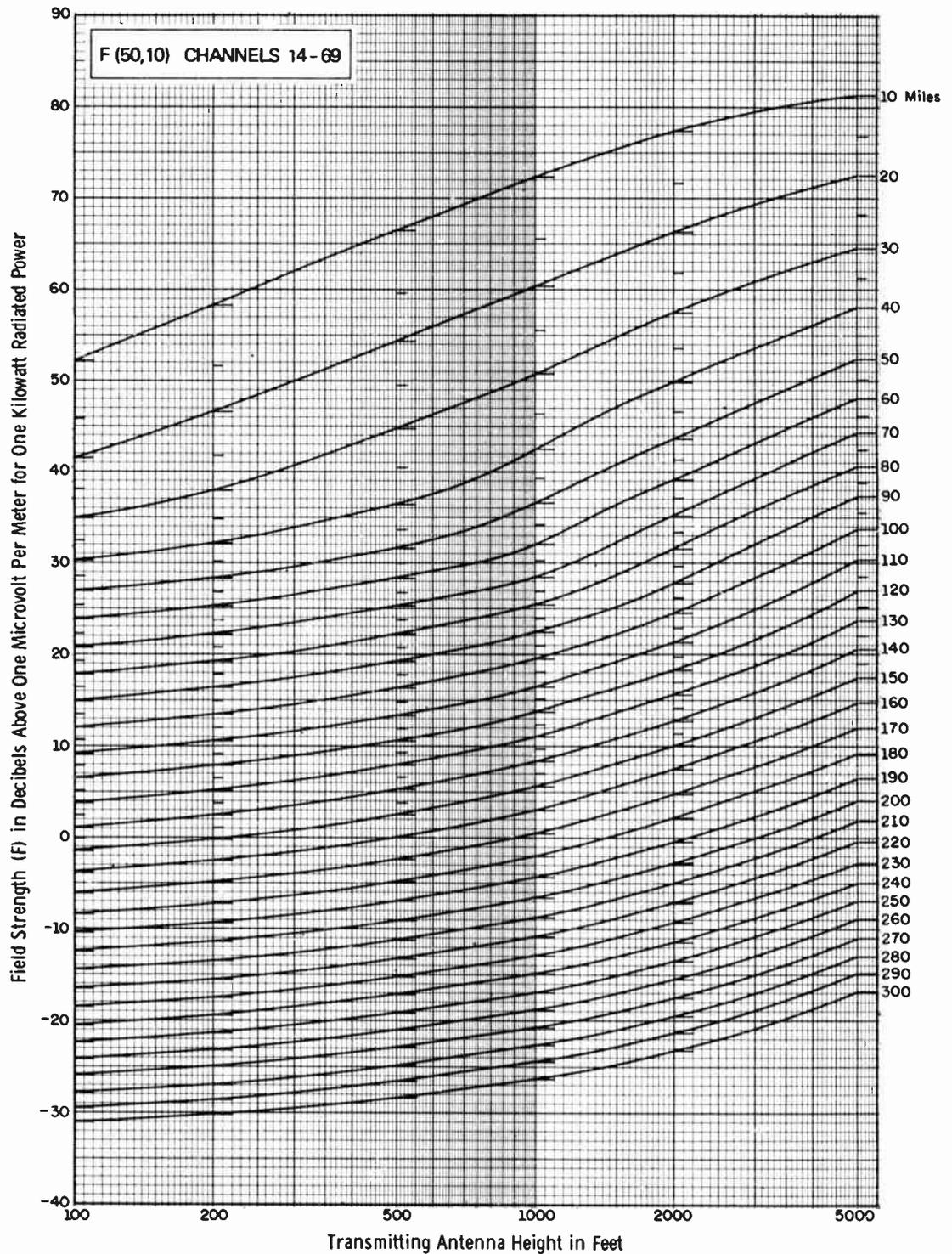
FCC §73.699 FIGURE 10a





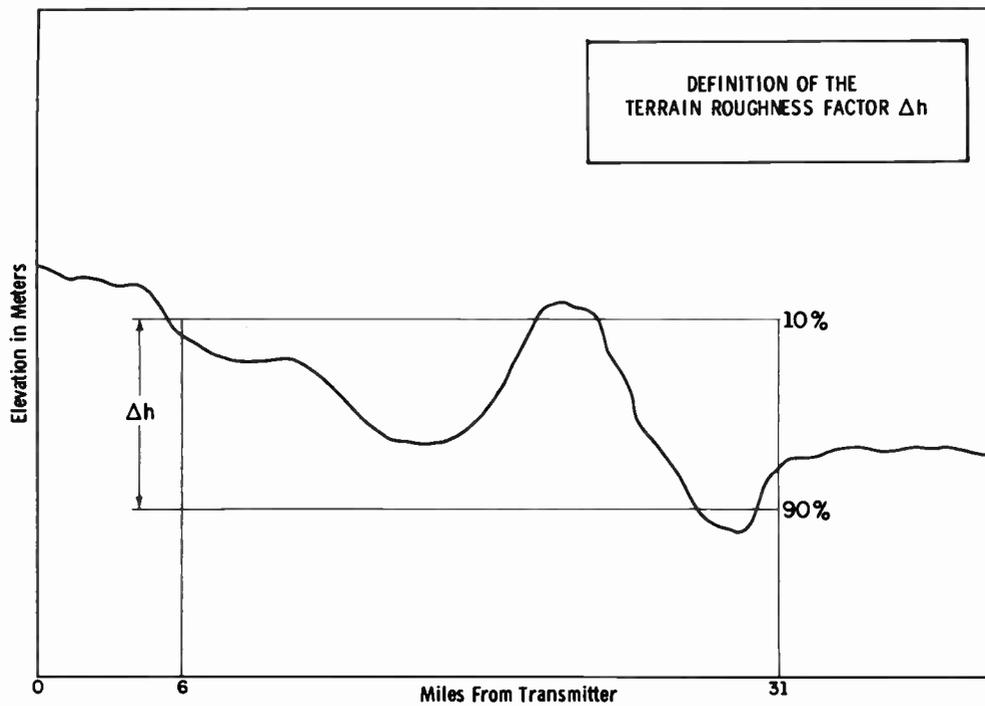
TELEVISION CHANNELS 14-69  
 ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
 OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 50 PERCENT  
 OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 30 FEET





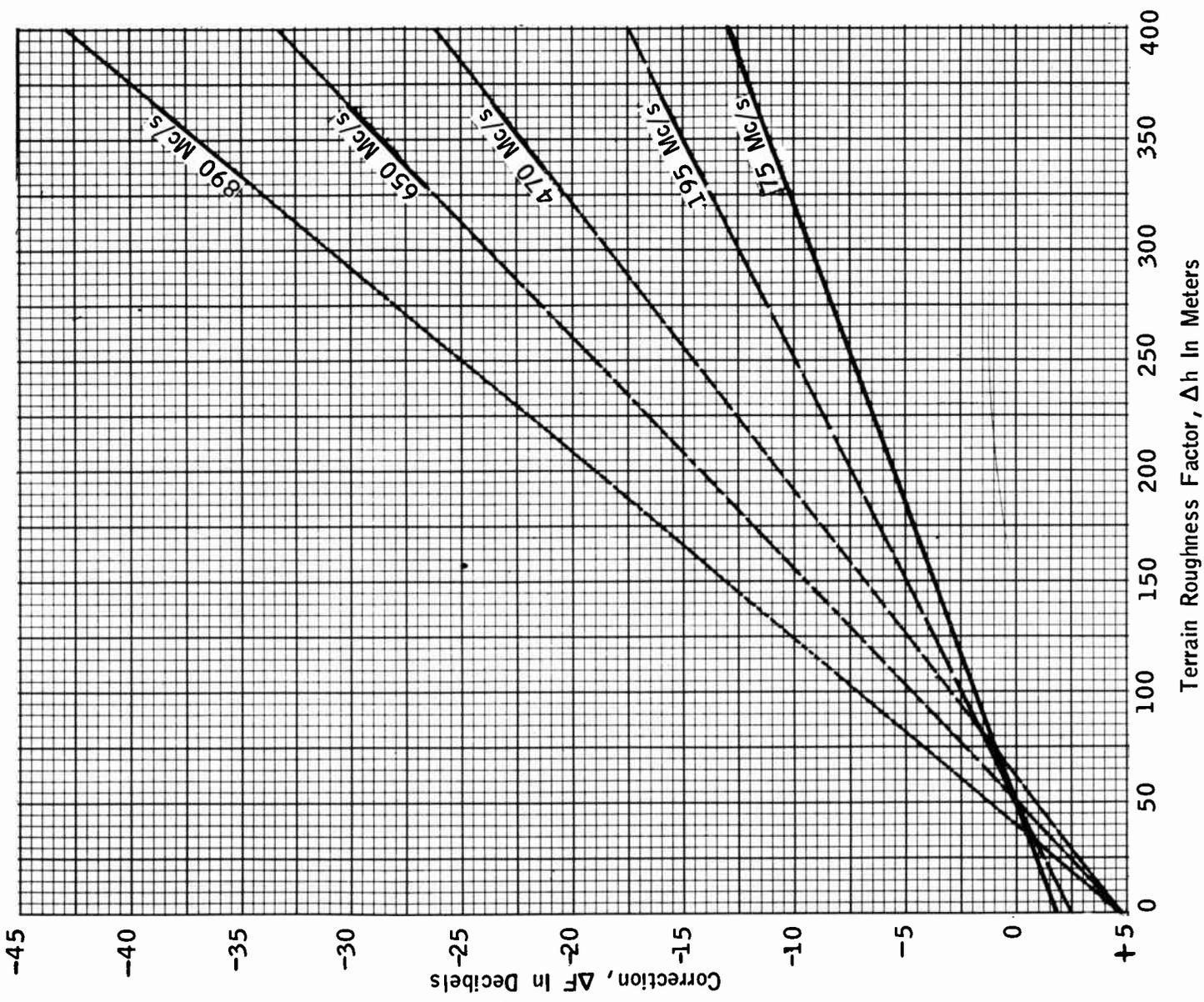
TELEVISION CHANNELS 14-69  
 ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT  
 OF THE POTENTIAL RECEIVER LOCATIONS FOR AT LEAST 10 PERCENT  
 OF THE TIME AT A RECEIVING ANTENNA HEIGHT OF 30 FEET





FCC §73.699 FIGURE 10d



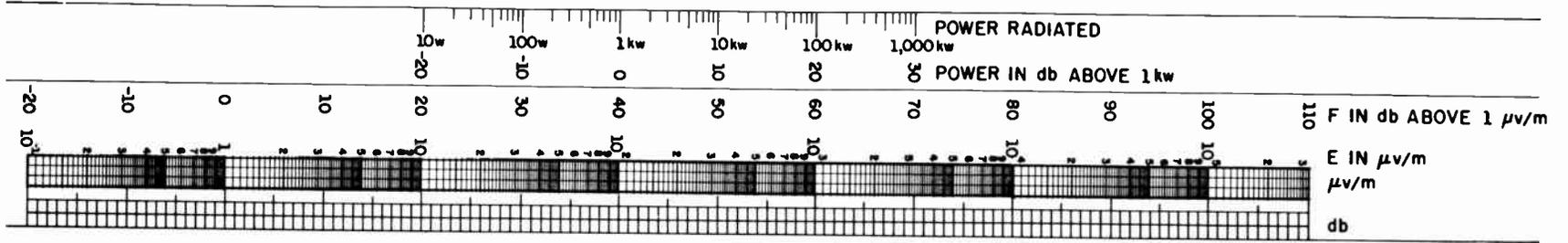


TERRAIN ROUGHNESS CORRECTION  
for use with estimated F(50,50) and F(50,10) field strength curves

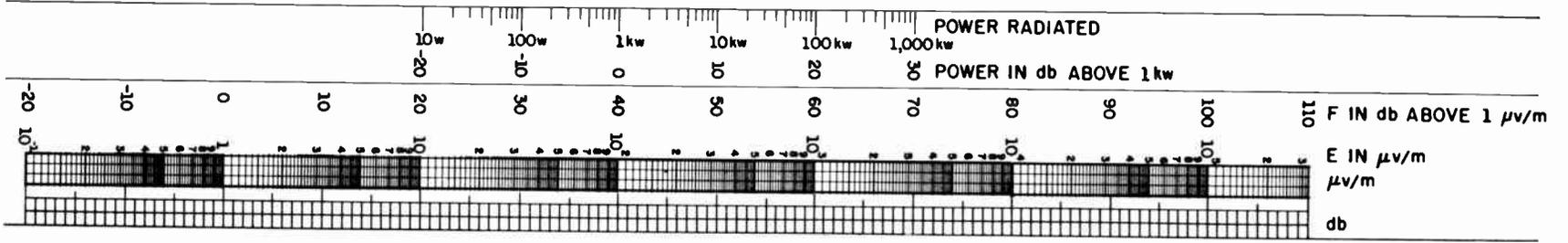


Sliding Scale for use with Figures 9 and 10

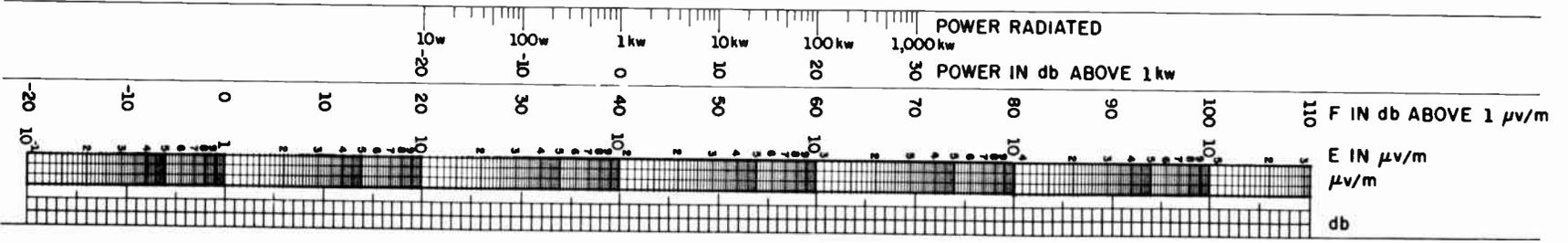
Sliding scale for use with Figures 9 & 10.



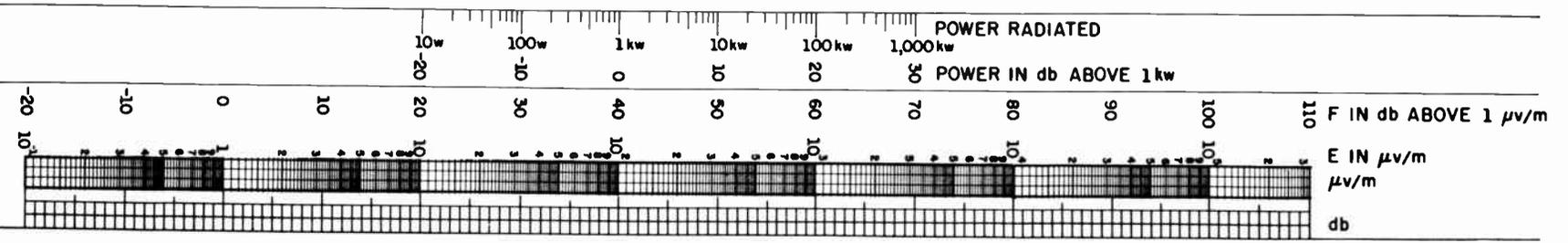
Sliding scale for use with Figures 9 & 10.



Sliding scale for use with Figures 9 & 10.

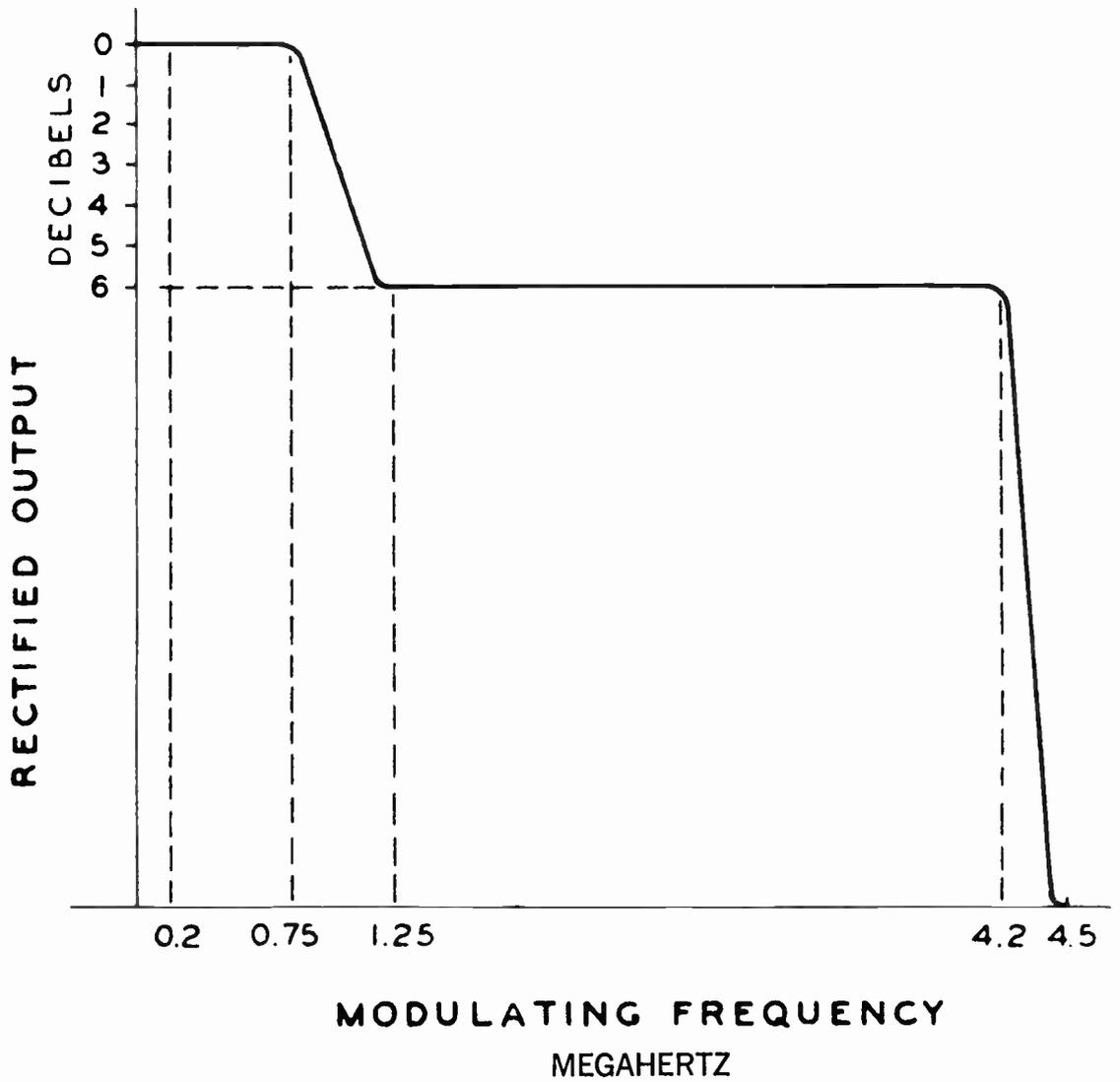


Sliding scale for use with Figures 9 & 10.



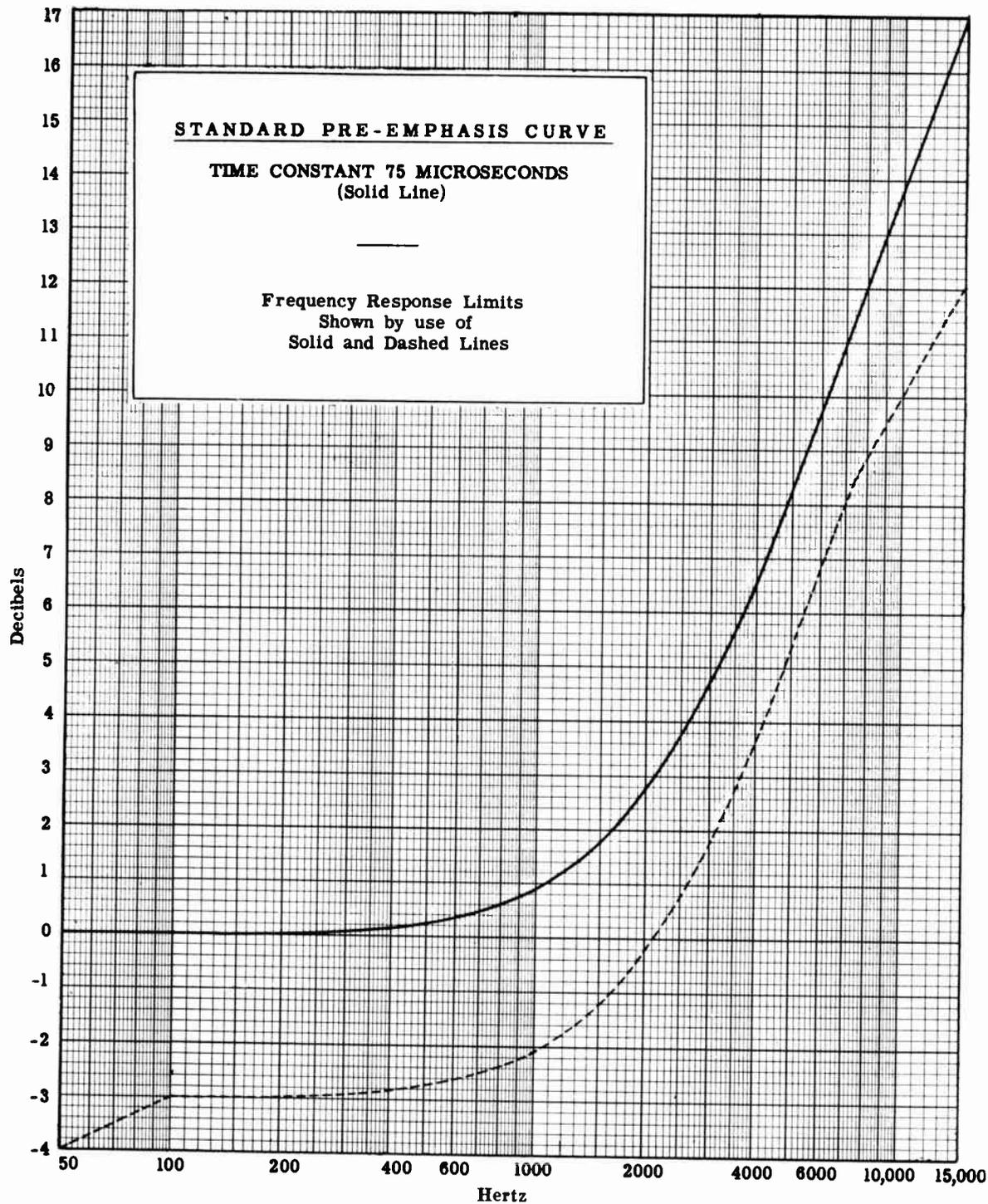


# ASSUMED IDEAL DETECTOR OUTPUT



FCC § 73.699, FIGURE 11

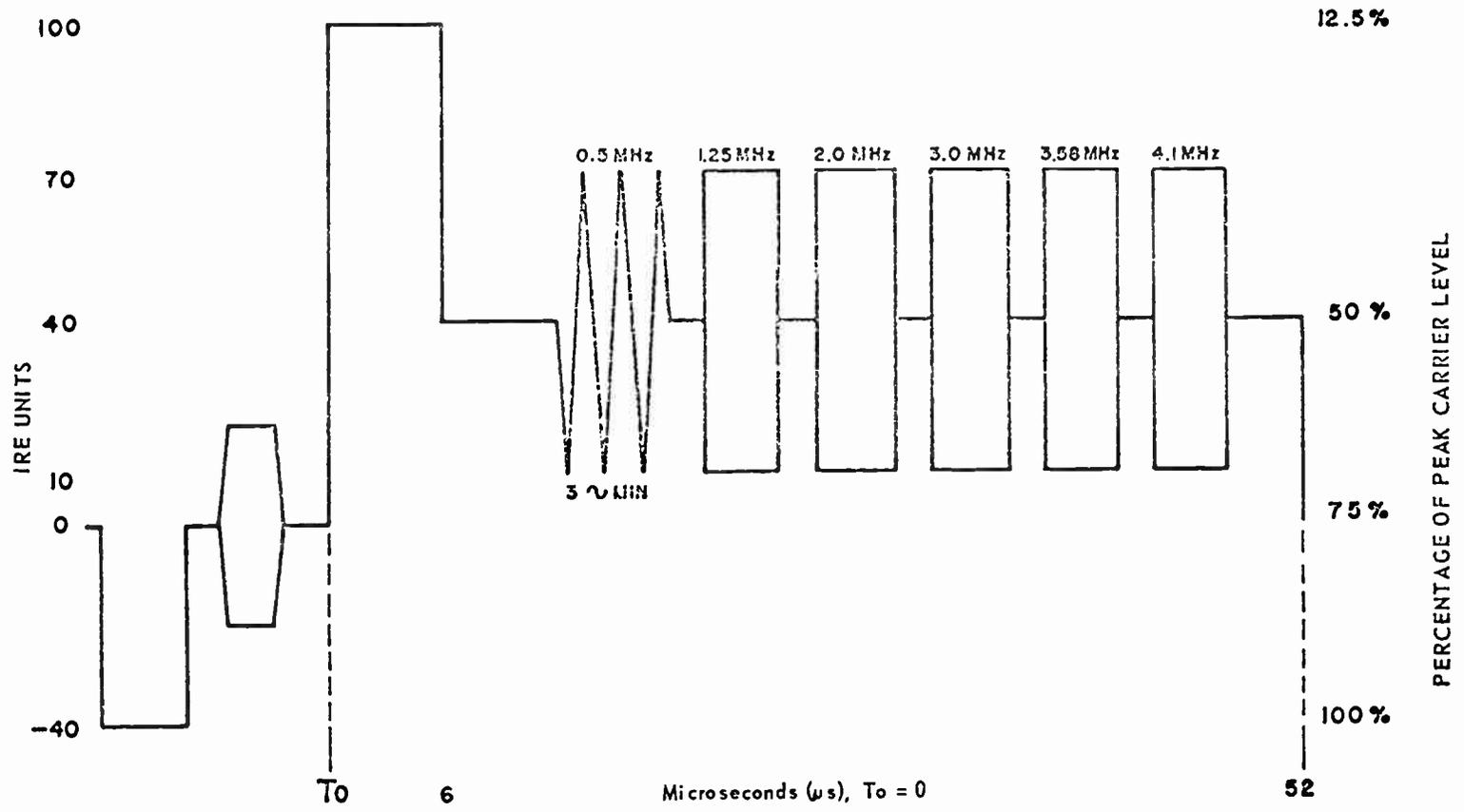




FCC § 73.699, FIGURE 12



MULTIBURST TEST SIGNAL  
(FIELD 1, LINE 17)

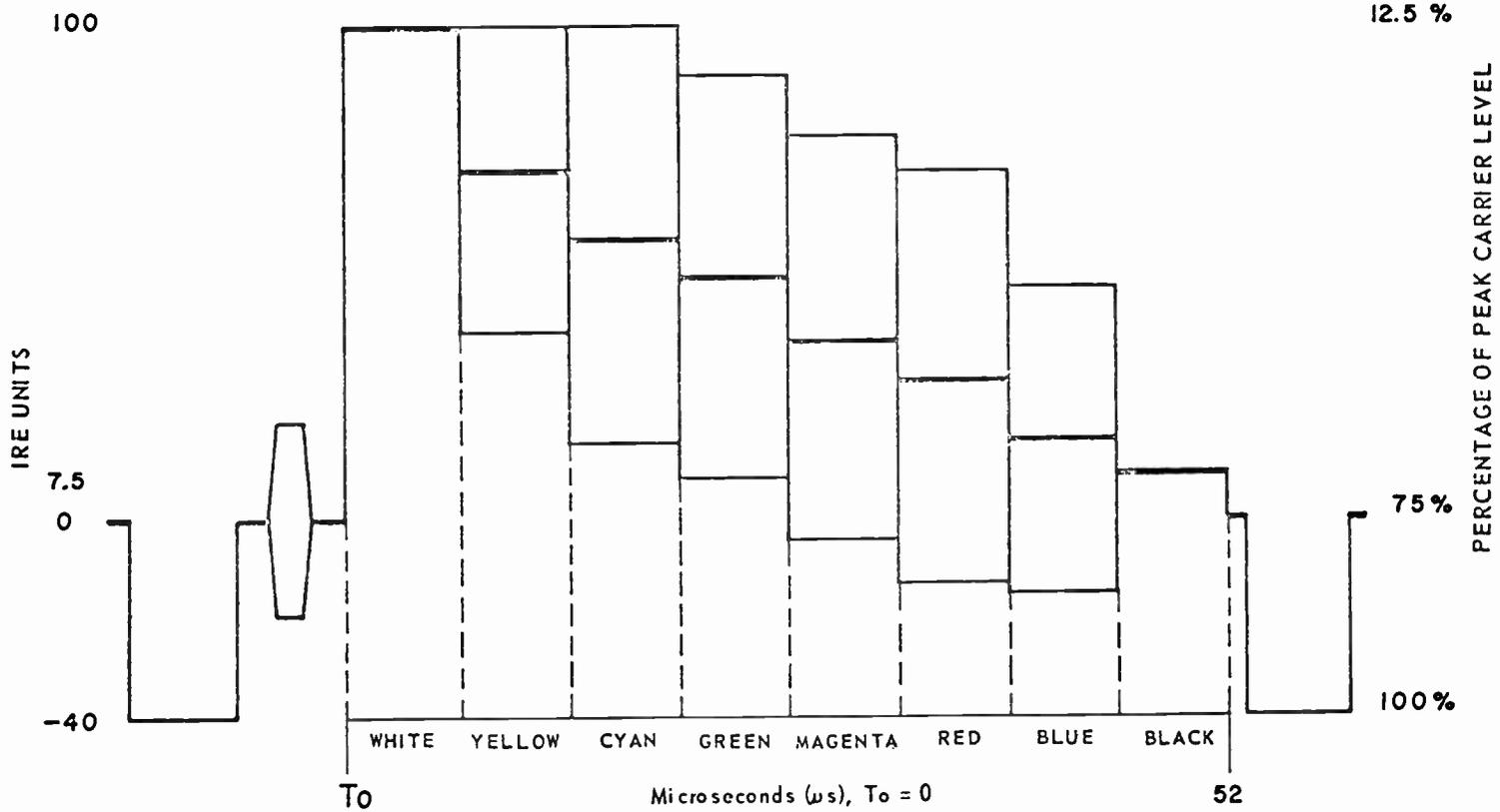


NOTES:

1. A breeze way, as shown between bursts, is recommended. Each burst = 60 IRE units peak to peak
2.  $T_0$  = Nominal start of active portion of line 17, field 1
3. Rise and fall of white bar shall have risetime of not less than 0.2  $\mu$ s



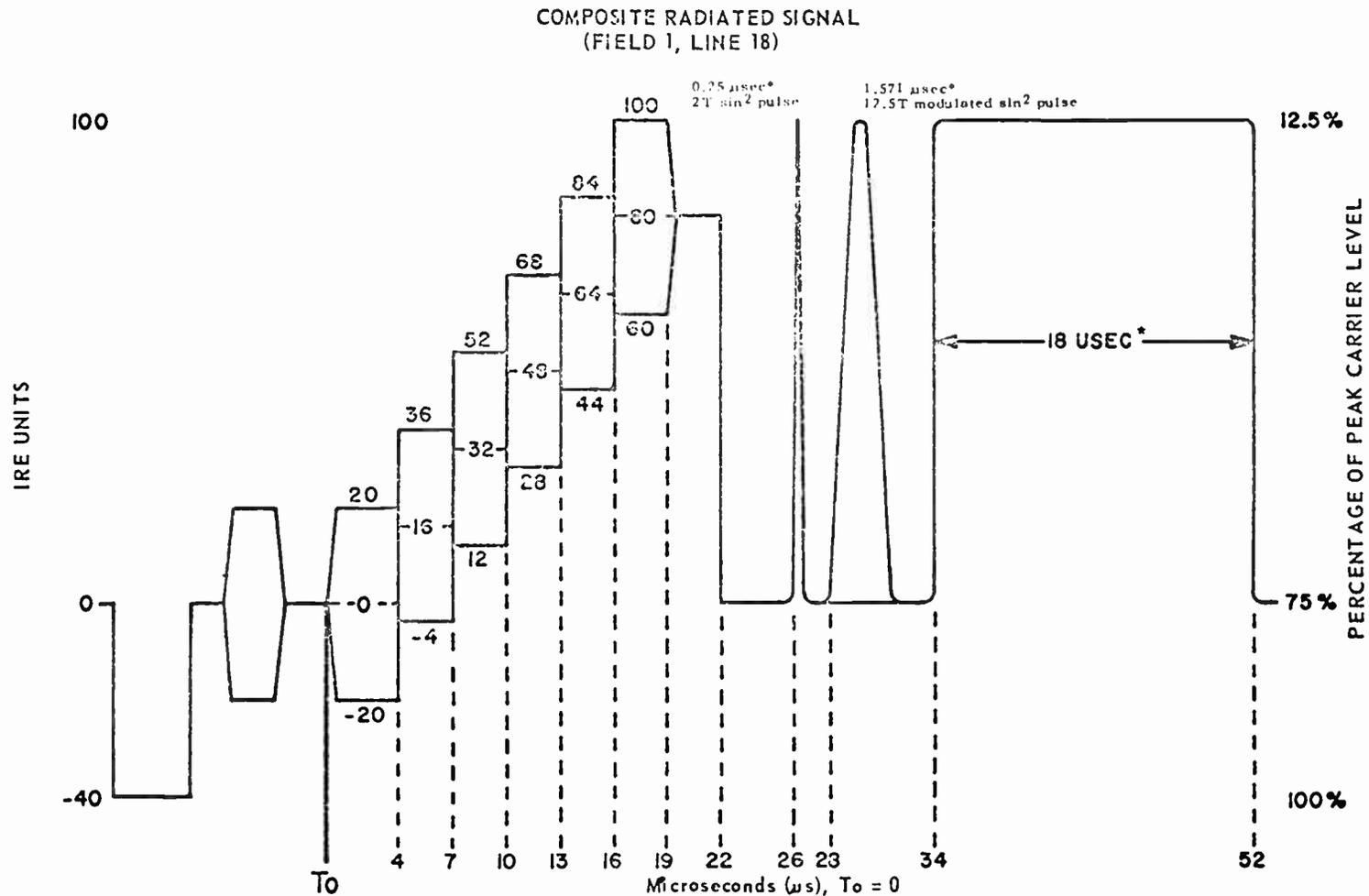
COLOR BAR TEST SIGNAL  
(FIELD 2, LINE 17)



NOTE:

1. Phases and amplitudes of the colored bars are in accordance with the FCC Rules and Regulations for 100% saturated colors of 75% amplitude.
2. White flag (bar) at reference white precedes the colored bars
3. A black bar at senp level follows the colored bars
4. Each bar 6  $\mu$ s minimum duration
5.  $T_0$  = Nominal start of active portion of line 17, field II

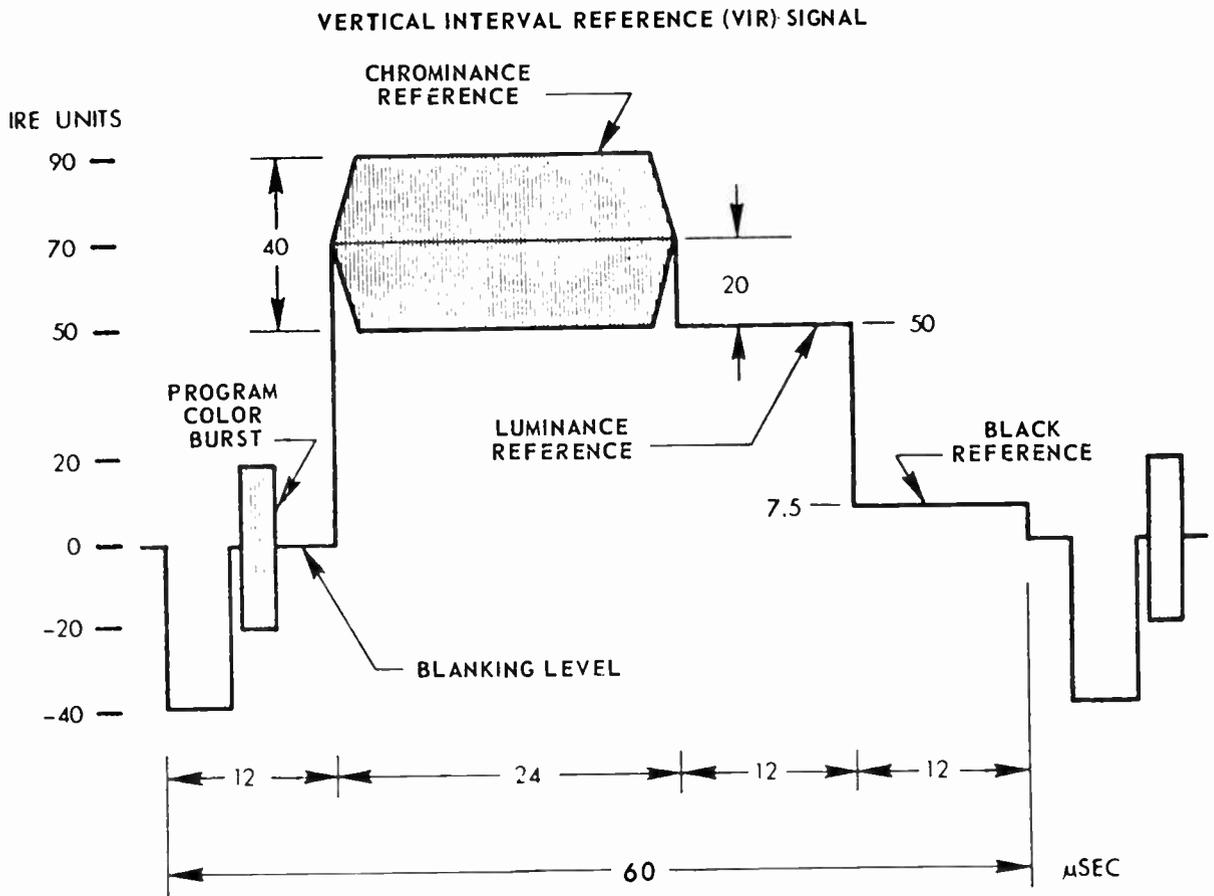




NOTES:

1. Sub-carrier of staircase in phase with burst \*half amplitude duration
2. Rise and decay of all luminance signals not less than 0.2  $\mu s$ . Rise and decay of envelope of sub-carrier component of staircase signal shall be approx.  $\sin^2$  shaped and risetime 0.375  $\mu s$ .
3.  $T_0$  = Nominal start of active portion of line 18





NOTE: The Chrominance Reference and the Program Color Burst have the same phase.

FCC § 73.699, Figure 16



RULES AND REGULATIONS

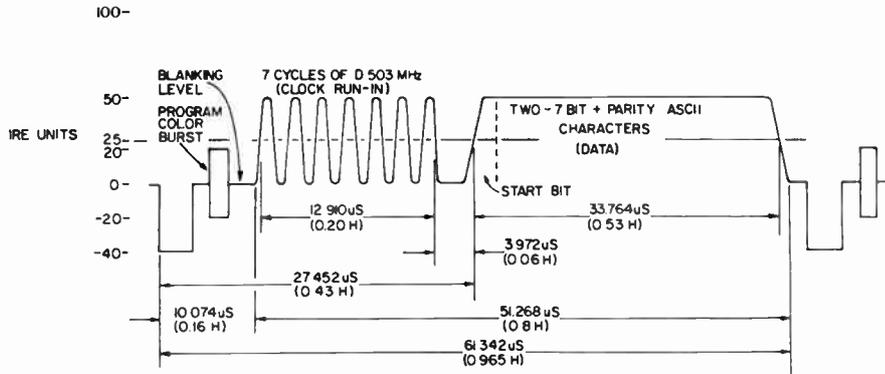


FIGURE 17 A LINE 21 FIELD 1 DATA SIGNAL FORMAT

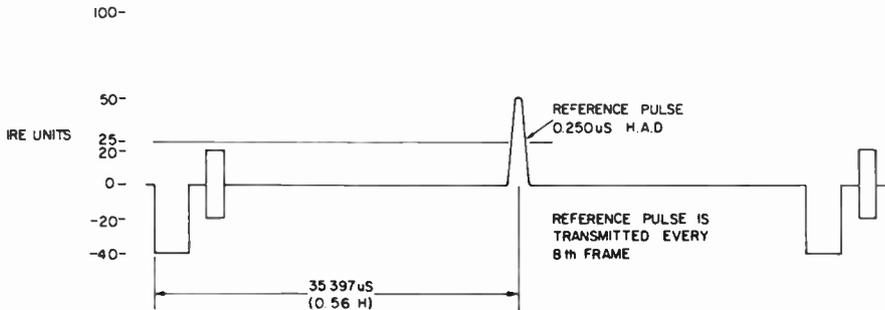


FIGURE 17 B ADAPTIVE EQUALIZER REFERENCE PULSE

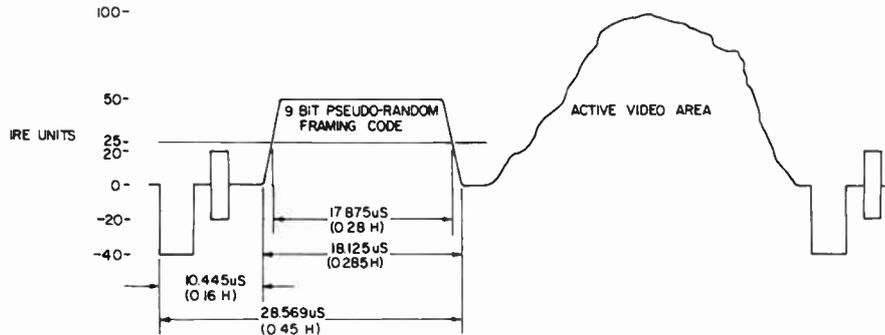


FIGURE 17 C LINE 21 FIELD TWO FRAMING CODE

HORIZONTAL DIMENSIONS NOT TO SCALE

- 1 DATA "1" = 50 IRE UNITS, DATA "0" = 0
- 2 DATA PULSE RISE TIME = 2 T BAR RISE TIME
- 3 DATA TIME BASE = 32 f<sub>H</sub> (0.50349650 MHz)
- 4 DATA BIT INTERVAL = H/32 (1.986 μs)
- 5 NEGATIVE GOING ZERO CROSSINGS OF CLOCK ARE COHERENT WITH DATA TRANSITIONS
- 6 DATA AND CLOCK RUN-IN COHERENT WITH H

FCC § 73.699, Figure 17



## SUBPART F—INTERNATIONAL BROADCAST STATIONS

### DEFINITIONS AND ALLOCATION OF FACILITIES

#### § 73.701 Definitions.

The following definitions apply to terminology employed in this subpart:

(a) *International broadcasting stations.* A broadcasting station employing frequencies allocated to the broadcasting service between 5,950 and 26,100 kHz, the transmissions of which are intended to be received directly by the general public in foreign countries. (A station may be authorized more than one transmitter.) There are both government and non-government international broadcasting stations; only the latter are licensed by the Commission and are subject to the rules of this subpart.

(b) *Transmitter-hour.* One frequency used on one transmitter for one hour.

(c) *Frequency-hour.* One frequency used for one-hour regardless of the number of transmitters over which it is simultaneously broadcast by a station during that hour.

(d) *Multiple operation.* Broadcasting by a station on one frequency over two or more transmitters simultaneously. If a station uses the same frequency simultaneously on each of two (three, etc.) transmitters for an hour, it uses one frequency-hour and two (three, etc.) transmitter-hours.

(e) *Day.* Any twenty-four hour period beginning 0100 G.m.t. and ending 0100 G.m.t.

(f) *Sunspot number.* The 12-month running average of the number of sunspots for any month as indicated in the U.S. Department of Commerce Telecommunications Research and Engineering Report No. 13—available from the Superintendent of Documents, Washington, D.C. 20402. The sunspot number varies in an approximate 11-year cycle.

(g) *March season.* That portion of any year commencing 0100 G.m.t. on the first Sunday in March and ending at 0100 G.m.t. on the first Sunday in May.

(h) *May season.* That portion of any year commencing at 0100 G.m.t. on the first Sunday in May and ending at 0100 G.m.t. on the first Sunday in September.

(i) *September season.* That portion of any year commencing at 0100 G.m.t. on the first Sunday in September and ending at 101 G.m.t. on the first Sunday in November.

(j) *November season.* That portion of any year commencing at 0100 G.m.t. on the first Sunday in November and ending at 0100 G.m.t. on the first Sunday in March.

(k) *Seasonal schedule.* An assignment, for a season, of a frequency or frequencies, and other technical parameters, to be used by a station for transmission to particular zones or areas of reception during specified hours.

(i) *Reference month.* That month of a season which is used for determining predicted propagation characteristics for the season. The reference month is January, April, July, or October, as related to the season in which it occurs.

(m) *Maximum usable frequency (MUF).* The highest frequency which is returned by ionospheric radio propagation to the surface of the earth for a particular path and time of day for 50 percent of the days of the reference month.

(n) *Optimum working frequency (FOT).* The highest frequency which is returned by ionospheric radio propagation to the surface of the earth for a particular path and time of day for 90 percent of the days of the reference month.

NOTE: The international abbreviation for optimum working frequency, FOT, is formed with the initial letters of the French words for "optimum working frequency" which are "frequence optimum de travail."

(o) *Zone of reception.* Any geographic zone indicated in § 73.703 in which the reception of particular programs is specifically intended and in which broadcast coverage is contemplated.

(p) *Area of reception.* Any geographic area smaller than a zone of reception in which the reception of particular programs is specifically intended and in which broadcast coverage is contemplated, such areas being indicated by countries or parts of countries.

(q) *Delivered median field strength, or field strength.* The field strength incident upon the zone or area of reception expressed in microvolts per meter, or decibels above one microvolt per meter, which is exceeded by the hourly median value for 50 percent of the days of the reference month.

(r) *Carrier power.* The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle under conditions of no modulation.

#### § 73.702 Assignment and use of frequencies.

(a) Frequencies will be assigned by the Commission prior to the start of each season to authorized international broadcasting stations for use during the season at specified hours and for transmission to specified zones or areas of reception, with specified power and antenna bearing. Six months prior to the start of each season, licensees and permittees shall by informal written request, submitted to the Commission in triplicate, indicate for the season the frequency or frequencies desired for transmission to each zone or area of reception specified in the license or permit, the specific hours during which it desires to transmit to such zones or areas on each frequency, and the power, antenna gain, and antenna bearing it desires to use. Requests will be honored to the extent that interference and propagation conditions permit and that they are otherwise in accordance with the provisions of this section.

(b) After necessary processing of the requests required by paragraph (a) of this section, the Commission will notify each licensee and permittee of the frequencies, hours of use thereof to specified zones or areas of reception, power, and antenna bearing which it intends to authorize for the season in question. After receipt of such notification, the licensee or permittee shall, in writing, not later than two months before the start of the season in question, inform the Commission either that it plans to operate in accordance with the authorization which the Commission intends to issue, or that it plans to operate in another manner. If the licensee or permittee indicates that it plans to operate in another manner, it shall furnish explanatory details.

(c) If after submitting the request required under the provisions of paragraph (a) of this section, but before receipt of the Commission's notification referred to in paragraph (b) of this section, the licensee or permittee submits a request for changes of its original request, such requests will be accepted for consideration only if accompanied by statements showing good cause therefor and will be honored only if conditions permit. If the information required to be submitted by the licensee or permittee under the provisions of paragraph (b) of this section indicates that operation in another manner is contemplated, and the explanatory details contain a request for change in the originally proposed manner of operation, and requests will be accepted for consideration only if accompanied by statements showing good cause therefor and will be honored only if conditions permit. If after the licensee or permittee submits the information required under the provisions of paragraph (b) of this section, but before the start of the season in question, the licensee or permittee submits a request for changes in its manner of operation for the season in question, the request will be accepted for consideration only if accompanied by statements showing good cause therefor and will be honored only if conditions permit. If after the start of a season the licensee or permittee submits a request for changes in the manner of operation as authorized, the request will be considered only if accompanied by statements showing good cause therefor, and will be honored only if conditions permit.

(d) The provisions of paragraphs (a), (b), and (c) of the section shall apply to licensees, to permittees operating under program test authority, and to permittees who anticipate applying for and receiving program test authority for operation during the specified season.

NOTE: Permittees who during the process of construction wish to engage in equipment tests shall by informal written request, submitted to the Commission in triplicate not less than 30 days before they desire to begin such testing, indicate the frequencies they desire to use for testing and the hours they desire to use those frequencies. No equipment testing shall occur until the Commission has authorized frequencies and hours for such testing. Such authorizations shall be only for one season, and if it is desired to continue equipment testing in a following season, new requests for frequencies and hours must be submitted at least 30 days before it is desired to begin testing in the following season.

(e) Within 14 days after the end of each season, a report shall be filed with the Commission by each licensee or permittee operating under program test authority who has been issued a seasonal schedule for that season. The report shall state whether the licensee or permittee has operated the number of frequency-hours authorized by the seasonal schedule to each of the zones or areas of reception specified in the schedule. If such operation has not occurred, a detailed explanation of that fact shall also be submitted which includes specific dates, frequency-hours not used, and reasons for the failure to operate as authorized. The report shall also contain information that has been received by the licensee or permittee as to reception or interference, and conclusions with regard to propagation characteristics of frequencies that were assigned for the season in question.

(f) Frequencies assigned by the Commission shall be within the following bands which are allocated exclusively to the international broadcasting service:

5,950-6,200 kHz  
 9,500-9,775 kHz  
 11,700-11,975 kHz  
 15,100-15,450 kHz  
 17,700-17,900 kHz  
 21,450-21,750 kHz  
 25,600-26,100 kHz

The carrier frequencies assignable shall begin 5 kHz above the frequency specified above for the beginning of each band and shall be in successive steps of 5 kHz to and including 5 kHz below the frequency specified as the end of each band.

(g) Frequencies requested for assignment must be as near as practicable to the optimum working frequency (unless otherwise justified) for the zone or area of reception for the period and path of transmission, and should be chosen so that a given frequency will provide the largest period of reliable transmission to the selected zone or area of reception. Moreover, at the zone or area of reception frequencies shall provide protection to the transmissions of other broadcasting stations which, in the opinion of the Commission, have priority of assignment.

NOTE 1: Requests for frequency-hours shall be accompanied by all pertinent technical data with reference to the frequencies and hours of operation, including calculated field strengths delivered to the zones or areas of reception.

NOTE 2: It is preferable that calculated field strengths delivered to zones or areas of reception be equal to or greater than those required by I.F.R.B. Technical Standards, Series A (and supplements thereto), in order for the I.F.R.B. to afford the notified assignment protection from interference. Nevertheless, calculated field strengths less than those required by the I.F.R.B. standards for protection will be acceptable to the Commission. However, licensees should note that if such lesser field strengths are submitted no protection from interference will be provided by the I.F.R.B. if their technical examination of such notifications show incompatibilities with other notified assignments fully complying with I.F.R.B. technical standards.

NOTE 3: Licensees are permitted to engage in multiple operation as defined in § 73.701 (d).

NOTE 4: Seasonal requests for frequency-hours will be only for transmissions to zones or areas of reception specified in the basic instrument of authorization. Changes in such zones or areas will be made only on separate application for modification of such instruments.

(h) Not more than one frequency will be assigned for use at any one time for any one program transmission except in instances where a program is intended for reception in more than one zone or area of reception and the intended zones or areas cannot be served by a single frequency: *Provided, however,* That on a showing of good cause a licensee may be authorized to operate on more than one frequency at any one time to transmit any one program to a single zone or area of reception.

(i) Any frequency assigned to a licensee or permittee shall also be available for assignment to other licensees or permittees.

(j) All assignments of frequencies and the hours during which they will be used will be made with the express understanding that they are subject to immediate cancellation or change without hearing whenever the Commission determines that interference or propagation conditions so require and that each frequency-hour assignment for a given seasonal schedule is unique unto itself and not necessarily available for use during a subsequent season.

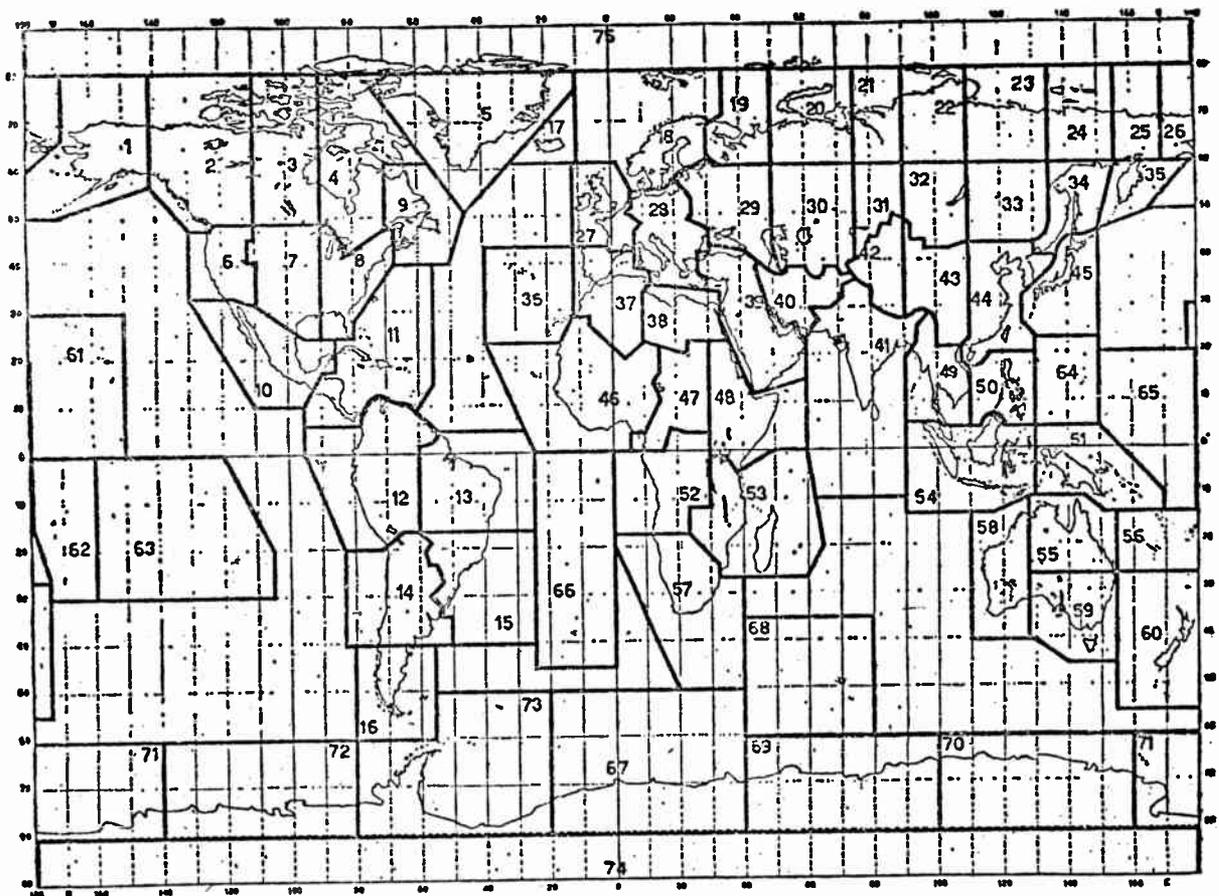
(k) The total maximum number of frequency-hours which will be authorized to all licensees of in-

ternational broadcasting stations during any one day for any season is 100. The number of frequency-hours allocated to any licensee will depend on past usage, availability, and need. If for a forthcoming season the total of the requests for daily frequency-hours of all licensees exceeds 100, all licensees will be notified and each licensee that makes an adequate showing that good cause exists for not having its requested number of frequency-hours reduced and that operation of its station without such reduction would be consistent with the public interest may be authorized the frequency-hours requested.

NOTE: The provisions of this paragraph are not to be construed to mean that a total of 100 (or more) frequency-hours per day is assured licensees. Frequency-hours will only be assigned to the extent that they are available. It is the responsibility of each licensee to make all technical studies to show that frequency-hours requested by it are available and suitable for use as proposed.

§ 73.703 Geographical zones and areas of reception.

The zones or areas of reception to be served by international broadcasting stations shall be based on the following map, and directive antenna shall be employed to direct transmissions thereto:



## § 73.704 [DELETED]

## ADMINISTRATIVE PROCEDURE

## § 73.710 Cross reference to rules in other Parts.

See § 73.1010.

## § 73.711 Notification of filing of applications.

See § 73.1030.

## § 73.712 Equipment tests.

(a) During the process of construction of an international broadcasting station, the permittee, having obtained authorization for frequencies and hours as set forth in the Note to § 73.702 (d), and having thereafter notified the Engineer in Charge of the radio district in which the station is located may, without further authority of the Commission, conduct equipment tests for the purpose of such adjustments and measurements as may be necessary to assure compliance with the terms of the construction permit, the technical provisions of the application therefor, and the rules and regulations. Such tests shall use voice identification and test tones only. No programming shall be conducted during equipment tests.

(b) The Commission may notify the permittee to conduct no tests or may cancel, suspend, or change the date for the beginning of equipment tests when and if such action may appear to be in the public interest, convenience, and necessity.

(c) Equipment tests may be continued so long as the construction permit shall remain valid: *Provided, however,* That the procedure set forth in paragraph (a) of this section must be repeated prior to the conducting of such tests in each season after the season in which the testing began.

(d) Inspection of a station will ordinarily be required during the equipment test period. After construction and after adjustments and measurements have been completed to show compliance with the terms of the construction permit, the technical provisions of the application therefor, and the rules and regulations of this chapter, the permittee should notify the Engineer in Charge of the radio district in which the station is located that it is ready for inspection.

(e) The authorization for tests embodied in this section shall not be construed as constituting a license to operate but as a necessary part of construction.

## § 73.713 Program tests.

(a) Upon completion of construction of an international broadcasting station in accordance with the terms of the construction permit, the technical provisions of the application therefor, and the rules and regulations and the applicable engineering standards, and when an application for station license has been filed showing the station to be in satisfactory operating condition, the permittee may request authority to conduct program tests: *Provided,* That such request shall be filed with the Commission at least ten

(10) days prior to the date on which it is desired to begin such operation and that the Engineer in Charge of the radio district in which the transmitter(s) is located is notified. (All data necessary to show compliance with the terms and conditions of the construction permit must be filed with the license application.)

(b) Program tests shall not commence until specific Commission authority is received. The Commission reserves the right to change the date of the beginning of such tests or to suspend or revoke the authority for program tests as and when such action may appear to be in the public interest, convenience, and necessity.

(c) Unless sooner suspended or revoked, program test authority continues valid during Commission consideration of the application for license and during this period further extension of the construction permit is not required. Program test authority shall be automatically terminated by final determination upon the application for station license.

(d) All operation under program test authority shall be in strict compliance with the rules governing international broadcasting stations and in strict accordance with representations made in the application for license pursuant to which the tests were authorized.

(e) The granting of program test authority shall not be construed as approval by the Commission of the application for station license.

## § 73.716 [DELETED]

## § 73.718 [DELETED]

## LICENSING POLICIES

## § 73.731 Licensing requirements.

(a) A license for an international broadcasting station will be issued only after a satisfactory showing has been made in regard to the following, among others:

(1) That there is a need for the international broadcasting service proposed to be rendered.

(2) That the necessary program sources are available to the applicant to render the international service proposed.

(3) That the production of the program service and the technical operation of the proposed station will be conducted by qualified persons.

(4) That the applicant is legally, technically and financially qualified and possesses adequate technical facilities to carry forward the service proposed.

(5) That the public interest, convenience and necessity will be served through the operation of the proposed station.

## § 73.732 Authorizations.

Authorizations issued to international broadcasting stations by the Commission will be authorizations to permit the construction or use of a particular transmitting equipment combination and related antenna

systems for international broadcasting, and to permit broadcasting to zones or areas of reception specified on the instrument of authorization. The authorizations will not specify the frequencies to be used or the hours of use. Requests for frequencies and hours of use will be made as provided in § 73.702. Seasonal schedules, when issued pursuant to the provisions of § 73.702, will become attachments to and part of the instrument of authorization, replacing any such prior attachments.

#### § 73.733 Normal license period.

All international broadcasting station licenses will be issued so as to expire at the hour of 3 a.m. local time and will be issued for a normal license period of 3 years expiring November 1.

### EQUIPMENT

#### § 73.751 Operating power.

No international broadcasting station will be authorized to install, or be licensed for operation of, transmitter equipment with a rated carrier power of less than 50 kilowatts.

#### § 73.753 Antenna systems.

All international broadcasting stations shall operate with directional antennas. Such antennas shall be designed and operated so that the radiated power in the maximum lobe toward the specific zone or area of reception intended to be served shall be at least 10 times the average power from the antenna in the horizontal plane. Radiation in all other directions shall be suppressed to the maximum extent technically feasible. In order to eliminate or mitigate harmful interference, the direction of the maximum lobe may be adjusted upon approval of the Commission.

#### § 73.754 Frequency monitors.

(a) The licensee of each international broadcast station shall operate a frequency monitor at the transmitter independent of the frequency control of the transmitter.

(b) The frequency monitor shall be designed and constructed in accordance with good engineering practice. It shall have an accuracy sufficient to determine that the operating frequency is within one-half of the allowed tolerance.

#### § 73.755 Modulation monitors.

The licensee of each international broadcast station shall have a modulation monitor in operation at the transmitter.

#### § 73.756 Transmission system requirements.

(a) *Design.* The construction, installation, operation, and performance of the international broadcasting transmitter system shall be in accordance with good engineering practice.

(b) *Spurious emission.* (1) Any emission appearing on a frequency removed from the carrier frequency by

between 6.4 kHz and 10 kHz, inclusive, shall be attenuated at least 25 decibels below the level of the unmodulated carrier. Compliance with the specification will be deemed to show the occupied bandwidth to be 10 kHz or less.

(2) Any emission appearing on a frequency removed from the carrier frequency by more than 10 kHz and up to and including 25 kHz shall be attenuated at least 35 decibels below the level of the unmodulated carrier.

(3) Any emission appearing on a frequency removed from the carrier frequency by more than 25 kHz shall be attenuated at least 80 dB below the level of the unmodulated carrier.

(4) In the event spurious emissions cause harmful interference to other stations or services, such additional steps as may be necessary to eliminate the interference must be taken immediately by the licensee.

(c) *Frequency control.* The transmitter shall be equipped with automatic frequency control apparatus so designed and constructed that it is capable of maintaining the operating frequency within 0.0015 percent of the assigned frequency.

#### § 73.757 Auxiliary transmitters.

Upon showing that a need exists for the use of auxiliary transmitters, a license may be issued provided that:

(a) Auxiliary transmitters may be installed either at the same location as the main transmitters or at another location.

(b) A licensed operator shall be in control whenever auxiliary transmitters are placed in operation.

(c) The auxiliary transmitters shall be maintained so that they may be put into immediate operation at any time for the following purposes:

(1) The transmission of the regular programs upon the failure of the main transmitters.

(2) The transmission of regular programs during maintenance or modification work on the main transmitter, necessitating discontinuance of its operation for a period not to exceed 5 days. (This includes the equipment changes which may be made without authority as set forth elsewhere in the rules and regulations or as authorized by the Commission by letter or by construction permit. Where such operation is required for periods in excess of 5 days, request therefor shall be in accordance with § 73.3542.)

(3) Upon request by a duly authorized representative of the Commission.

(d) The auxiliary transmitters shall be tested at least once each week to determine that they are in proper operating condition and that they are adjusted to the proper frequency except that in the case of operation in accordance with paragraph (c) of this section during any week, the test in that week may be omitted provided the operation under paragraph (c) of this section is satisfactory. A record shall be kept of the time and result of each test. Such records shall be retained for a period of two years.

(e) The auxiliary transmitters shall be equipped with satisfactory control equipment which will enable the maintenance of the frequency emitted by the station within the limits prescribed by the regulations in this part.

(f) The operating power of an auxiliary transmitter may be less but not greater than the authorized power of the main transmitters.

#### § 73.758 Alternate main transmitters.

The licensee of an international broadcast station may be licensed for alternate main transmitters provided that a technical need for such alternate transmitters is shown and that the following conditions are met: Both transmitters (a) are located at the same place; (b) shall have the same power rating; and (c) shall meet the construction, installation, operation, and performance requirements of good engineering practice.

#### § 73.759 Modification of transmission systems.

Specific authority, upon filing formal application (FCC Form 309) therefore, is required for any of the following changes:

(a) Change involving an increase or decrease in the power rating of the transmitters.

(b) A replacement of the transmitters as a whole.

(c) Change in the location of the transmitting antenna.

(d) Change in location of main studio, if it is proposed to move the main studio at a different city from that specified in the license.

(e) Change in the power delivered to the antenna.

(f) Change in frequency control and/or modulation system.

(g) Change in direction or gain of antenna system.

Other changes, not specified above in this section, may be made at any time without the authority of the Commission: *Provided*, That the Commission shall be immediately notified thereof and such changes shall be shown in the next application for renewal of license.

### TECHNICAL OPERATION AND OPERATORS

#### § 73.761 Time of operation.

(a) All international broadcasting stations shall operate in accordance with the times indicated on their seasonal schedules.

(b) In the event that causes beyond a licensee's control make it impossible to adhere to the seasonal schedule or to continue operating, the station may limit or discontinue operation for a period of not more than 10 days, without further authority from the Commission. However, in such cases, the Commission and the Engineer in Charge of the radio district in which the station is located shall be immediately notified in writing of such limitation or discontinuance of operation and shall subsequently be notified when the station resumes regular operation.

(c) In the event that causes beyond a licensee's control make it impossible to adhere to the seasonal schedule or to continue operating for a temporary period of more than ten days, the station may not limit or discontinue operation until it requests and receives specific authority to do so from the Commission. When the station subsequently resumes regular operation after such limited operation or discontinuance of operation, it shall notify the Commission and the Engineer in Charge of the radio district in which the station is located.

#### § 73.762 Station inspection.

See § 73.1225.

#### § 73.763 Station license and seasonal schedules, posting of.

See § 73.1230.

#### § 73.764 Operator requirements.

One or more licensed radiotelephone first-class operators shall be on duty at the place where the transmitting apparatus of each station is located and in actual charge thereof whenever it is being operated. The original license (or FCC Form 759) of each station operator shall be posted at the place where he is on duty. The licensed operator on duty and in charge of an international broadcast transmitter may, at the discretion of the licensee, be employed for other duties or for the operation of another station or stations in accordance with the class of operator's license which he holds and by the rules and regulations governing such stations. However, such duties shall in no wise interfere with the operation of the broadcast transmitter.

(Sec. 318, 48 Stat. 1089, as amended by P.L. 86-809, 74 Stat. 363; 47 U.S.C. 318)

#### § 73.765 Determining operating power.

The operating power specified in § 73.751 shall be determined by use of a calibrated dummy load or by any other method specified by the licensee and accepted by the Commission. Such method may subsequently be used by the licensee to maintain the authorized operating power.

#### § 73.766 Modulation and bandwidth.

The percentage of modulation shall be maintained as high as possible consistent with good quality of transmission and good broadcast practice. In no case shall it exceed 100 percent on positive or negative peaks of frequent recurrence. It should not be less than 85 percent on peaks of frequent recurrence. The range of modulation frequencies shall be so controlled that the authorized bandwidth of the emission shall not be exceeded under all conditions of modulation. The highest modulating frequency shall not exceed 5 kHz.

#### § 73.767 Frequency tolerance.

See § 73.1545.

**§ 73.768 Antenna structure, marking and lighting.**

See § 73.1213.

**§ 73.769 Discontinuance of operation.**

See 73.1750.

**(OTHER OPERATING REQUIREMENTS)****§ 73.781 Logs.**

The licensee or permittee of each international broadcast station shall maintain program and operating logs in the following manner:

(a) In the program log:

(1) An entry of the time each station identification announcement (call letters and location) is made.

(2) An entry briefly describing each program broadcast, such as "music", "drama", "speech", etc., together with the name or title thereof, language, and the sponsor's name, with the time of beginning and ending of the complete program.

(3) For each program of network origin, an entry showing the name of the network originating the program.

(b) In the operating log:

(1) An entry of the time the station begins to supply power to the antenna, and another of the time it stops.

(2) An entry of the time the program begins and ends.

(3) An entry of each interruption to the carrier wave, its cause, and duration.

(4) An entry of the following each 30 minutes:

(i) Operating constants of last radio stage of the transmitter (total plate current and plate voltage).

(ii) Frequency monitor reading.

(5) A log must be kept of all experimental operation. If the entries required above are not applicable thereto, then the entries shall be made so as to fully describe the operation.

(c) Entries required by § 17.49 (a), (b), and (c) of this chapter concerning the time the tower lights are turned on and off each day if manually controlled, the time the daily check of proper operation of the tower lights was made if automatic alarm system is not provided, and any observed failure of the lighting system. See § 17.47(a) for daily tower lighting observation or automatic alarm system requirements.

(d) The entries required by § 17.49(d) of this chapter concerning quarterly inspections of the condition of the tower lights and associated control equipment; when adjustments, replacement or repairs are made to insure compliance with the lighting requirements; and when towers are cleaned or repainted as required by § 17.50 of this chapter.

**§ 73.782 Retention of logs.**

Logs of international broadcast stations shall be retained by the licensee or permittee for a period of two years: *Provided, however,* That logs involving communications incident to a disaster or which include communications incident to or involved in an investigation by the Commission and concerning which the licensee or permittee has been notified, shall be retained by the licensee or permittee until he is specifically authorized in writing by the Commission to destroy them: *Provided, further,* That logs incident to or involved in any claim or complaint of which the licensee or permittee has notice shall be retained by the licensee or permittee until such claim or complaint has been fully satisfied or until the same has been barred by statute limiting the time for the filing of suits upon such claims.

**§ 73.783 Logs; by whom kept.**

See § 73.1800.

**§ 73.784 Log form.**

See § 73.1800.

**§ 73.785 Correction of logs.**

See § 73.1800.

**【§§ 73.783, 73.784, and 73.785 amended eff. 4-30-80; III(80)-1】**

**§ 73.786 Rough logs.**

Rough logs may be transcribed into condensed form, but in such case, the original log or memoranda and all portions thereof shall be preserved and made a part of the complete log.

**§ 73.787 Station identification.**

(a) A licensee of an international broadcast station shall make station identification announcement (call letters and location), at the beginning and ending of each time of operation and during the operation on the hour.

(b) Station identification, program announcements, and oral continuity shall be made with international significance (language particularly) which is designed for the foreign country or countries for which the service is primarily intended.

**§ 73.788 Service; commercial or sponsored programs.**

(a) A licensee of an international broadcast station shall render only an international broadcast service which will reflect the culture of this country and which will promote international goodwill, understanding, and cooperation. Any program solely intended for and

intended for and directed to an audience in the continental United States does not meet the requirements for this service.

(b) Such international broadcast service may include commercial or sponsored programs: *Provided, That:*

(1) Commercial program continuities give no more than the name of the sponsor of the program and the name and general character of the commodity, utility or service, or attraction advertised.

(2) In case of advertising a commodity, the commodity is regularly sold or is being promoted for sale on the open market in the foreign country or countries to which the program is directed in accordance with paragraph (c) of this Section.

(3) In case of advertising an American utility or service to prospective tourists or visitors to the United States, the advertisement continuity is particularly directed to such persons in the foreign country or countries where they reside and to which the program is directed in accordance with paragraph (c) of this section.

(4) In case of advertising an international attraction (such as a world fair, resort, spa, etc.) to prospective tourists or visitors to the United States, the oral continuity concerning such attraction is consistent with the purpose and intent of this section.

(5) In case of any other type of advertising, such advertising is directed to the foreign country or coun-

tries to which the program is directed and is consistent with the purpose and intent of this section.

(c) The geographic areas to be served by international broadcasting stations are the zones and areas of reception shown in § 73.703.

(d) An international broadcast station may transmit the program of a standard broadcast station or network system: *Provided, That* the conditions in paragraph (b) of this section as to any commercial continuities are observed and when station identifications are made, only the call letter designation of the international station is given and its assigned frequency: *And provided further,* That in the case of chain broadcasting the program is not carried simultaneously by another international station (except another station owned by the same licensee operated on a frequency in a different group to obtain continuity of signal service), the signals from which are directed to the same area. (See section 3(p) of the Communications Act of 1934 for the definition of "chain broadcasting.")

**§ 73.789 Sponsorship identification.**

See § 73.1212.

**§ 73.790 Rebroadcasts.**

See § 73.1207.

**§ 73.793 Equal employment opportunities.**

See § 73.2080.

## SUBPART G—EMERGENCY BROADCAST SYSTEM

### SCOPE AND OBJECTIVES

#### § 73.901 Scope of subpart.

This subpart contains rules and regulations providing for an Emergency Broadcast System (EBS). It applies to all broadcast stations under FCC jurisdiction, and is issued under authority of Sections 1, 4 (i), (o), and 303 (r) of the Communications Act of 1934, as amended.

#### § 73.902 Objectives of subpart.

The objective of this subpart is to provide a means for the development and implementation of Emergency Broadcast System planning and operation at the National, State, and local levels. Provision is made for operation of participating broadcast stations and other non-government industry entities on a voluntary, organized basis during emergency situations for the purpose of providing the President and the Federal government, as well as heads of State and local government, or their designated representatives, with a means of communicating with the general public. Participation in the EBS at the State and Operational (Local) Area levels is at the discretion of broadcast station management.

### DEFINITIONS

#### § 73.903 Emergency Broadcast System (EBS).

The EBS is composed of AM, FM and TV broadcast stations and non-government industry entities operating on a voluntary, organized basis during emergencies at National, State or Operational (Local) Area levels.

#### § 73.904 Licensee.

The term "Licensee" as used in this subpart means the holder of a broadcast station license granted or continued in force under authority of the Communications Act of 1934, as amended. Such licensees include any AM, FM, or TV station holding a valid license, program test authorization, or other authorization permitting regular broadcast operation.

#### § 73.905 Emergency Action Notification (EAN).

The Emergency Action Notification (EAN) is the notice to all licensees and regulated services of the FCC, participating non-government industry entities, and to the general public, of the activation of the EBS. The EAN is distributed in accordance with § 73.931.

#### § 73.906 Attention Signal.

The attention signal to be used by AM, FM, and TV broadcast stations to actuate muted receiver for interstation receipt of emergency cueing announcements and broadcasts involves the use of two audio tones in the following arrangement:

(a) *Tone frequencies.*—The two audio tones shall

have fundamental frequencies of 853 and 960 Hertz and shall not vary over  $\pm 0.5$  Hertz.

(b) *Harmonic distortion.*—The total harmonic distortion of each of the audio tones shall not exceed 5%.

(c) *Minimum level of modulation.*—Each of the two tones shall be calibrated separately to modulate the transmitter at no less than 40%. These two calibrated modulations levels shall have values that are within at least 1 dB of each other.

(d) *Time period for transmission of tones.*—The two tones with the characteristics specified above shall automatically modulate the transmitter simultaneously at the resulting level for an automatic time period of not less than 20 seconds nor longer than 25 seconds.

#### § 73.907 Emergency Action Termination.

The Emergency Action Termination is the notice to all licensees and regulated services of the FCC, participating nongovernment industry entities and to the general public of the termination of the EBS at the National level. This termination is distributed in the same manner as the dissemination of the EAN at the National level in accordance with § 73.931.

#### § 73.908 EBS Checklist.

The EBS Checklist states in summary form the actions to be taken by station personnel upon receipt of the Emergency Action Notification, Termination or Test Messages. Two EBS Checklists are available: one for participating stations and the other for nonparticipating stations. A copy of the appropriate Checklist should be located at normal duty positions where it shall be immediately available to broadcast station staff responsible for: (a) authenticating Emergency Action Notifications, Terminations, and Tests received; and (b) initiating appropriate EBS actions.

#### § 73.909 Standard Operating Procedures (SOP's).

The SOP's contain detailed operational instructions which are used for activating, terminating and testing the National level EBS. They are issued by the FCC to specified control points of the national Radio and Television Broadcast Networks (ABC, CBS, MBS, NBC, NPR, UPI-Audio, ABC-TV, CBS-TV, NBC-TV, and PBS), participating Communications Common Carriers, the Associated Press (AP) and the United Press International (UPI).

(a) *SOP-1, EBS activation and termination procedures.* This SOP contains the detailed operational authentication procedures for activation, operation, and termination of the EBS in response to an actual National emergency situation.

(b) *SOP-2, EBS test transmissions.* This SOP contains the detailed operational and authentication procedures for testing the EBS at the National level.

(c) *SOP-3, EBS backup procedures.* This SOP contains the detailed operational and authentication procedures to be used in event the procedures in SOP-1 cannot function.

### § 73.910 Authenticator Word Lists.

These lists are issued every six months by the FCC and are used in conjunction with procedures contained in the EBS Checklist and SOP's for tests or actual National emergency situations.

(a) *EBS Authenticator List—Red Envelope*. This document is used for authentication purposes in conjunction with the procedures contained in EBS Checklists, SOP-1, SOP-2, and SOP-3. It is issued to all broadcast stations and specified control points (National Radio and TV Broadcast Networks, participating communications common carriers, AP and UPI).

(b) *EBS Authenticator List (Voice)—White Envelope*. This document is used for caller identification purposes in conjunction with the procedures in SOP-3 and is issued to the above specified control points.

### § 73.911 Basic Emergency Broadcast System Plan.

The Basic EBS Plan contains guidance to all non-government entities for the distribution of emergency information and instructions covering a broad range of emergency contingencies posing a threat to the safety of life or property.

### § 73.912 NIAC Order.

This is a service order previously filed with participating communications common carriers providing for program origination reconfiguration of the major Radio and Television Networks voluntarily participating in the National level EBS. Participating networks are:

(a) American Broadcasting Company (ABC and ABC-TV).

(b) Columbia Broadcasting System (CBS and CBS-TV).

(c) Intermountain Network (IMN).

(d) Mutual Broadcasting System (MBS).

(e) National Broadcasting Company (NBC and NBC-TV).

(f) National Public Radio (NPR).

(g) Public Broadcasting Service (PBS).

(h) United Press International Audio (UPI-Audio). NIAC Orders must meet White House requirements and will be activated only in accordance with the FCC Rules and Regulations.

### § 73.913 Emergency Broadcast System Authorization.

(a) This authorization is issued by the FCC to licensees of broadcast stations to permit operation on a voluntary, organized basis during a National emergency consistent with the provisions of this subpart of the rules and regulations. This authorization will remain in effect during the period of the initial license and subsequent renewals unless returned by the holder or suspended, modified or withdrawn by the Commission.

(b) An EBS Authorization is not required in order to participate on a voluntary, organized basis in State

and Operational (Local) Area Emergency Broadcast System operations as set forth in § 73.935.

(c) Any non-participating broadcast station may request an EBS authorization by making such request via informal letter to the FCC in Washington, D.C., 20554.

### § 73.914 Primary Station (Primary).

A Primary Station broadcasts or rebroadcasts a common emergency program for the duration of the activation of the EBS at the National, State, or Operational (Local) Area Level. The EBS transmission of such stations are intended for direct public reception as well as inter-station programming.

### § 73.915 Primary Relay Station (Pri Relay).

A Primary Relay Station (an integral part of the State Relay Network) is a broadcast station responsible for the relay of National level and State level common emergency programming into the Operational (Local) Area levels.

### § 73.916 Common Program Control Station (CPCS).

This is a Primary Station in an Operational (Local) Area which preferably has special communication links with appropriate authorities (e.g., National Weather Service, Civil Defense, local or State government authorities, etc.) as specified in the State EBS Operational Plan. A Primary CPCS Station is responsible for coordinating the carriage of a common emergency program for its area. If it is unable to carry out this function, other Primary Stations in the Operational (Local) Area will be assigned the responsibility as indicated in the State EBS Operational Plan.

### § 73.917 Originating Primary Relay Station (Orig Pri Relay).

An Originating Primary Relay Station is a station as defined in § 73.915 that acts as the originating station source of common program from the State capital or State emergency operating center for the State Relay Network, and may be programmed directly by the Governor or a designated representative.

### § 73.918 Non-participating Station (Non-EBS).

This is a broadcast station which has elected not to participate in the National level EBS and does not hold an EBS authorization. Upon activation of the EBS at the National level such stations are required to remove their carriers from the air and monitor for the Emergency Action Termination in accordance with the instructions in the EBS Checklist for Non-Participating Stations.

### § 73.919 State Relay Network.

A State Network is a relay network, composed of Primary Relay Stations and leased common carrier communications facilities and any other available communication facilities, for disseminating statewide emergency programming originated by the Governor or a designated representative.

## EBS ATTENTION SIGNAL EQUIPMENT

## § 73.940 Encoder devices.

An encoder device shall be used by broadcast stations for the generation of the two-tone Attention Signal. Only noncommercial educational FM broadcast stations of 10 watts or less are exempt from the requirement of installing the encoder device. The encoder device shall comply with the following requirements:

(a) *Tone Frequencies.* The two audio signals of the encoder shall have fundamental frequencies of 853 and 960 Hertz. The frequency of each tone shall not vary more than  $\pm 0.5$  Hertz.

(b) *Harmonic Distortion.* Total harmonic distortion of each of the audio tones shall not exceed 5 percent as measured at the output terminals of the encoder.

(c) *Minimum Level of Output.* The encoder shall have an output level capability of at least +8 dBm into a 600 ohm load impedance at each audio tone. (The output level of each tone shall be calibrated individually.) A non-locking switch (or switches) shall be provided in the encoder to permit individual activation of the two tones for calibration of associated systems.

(d) *Time Period for Transmission of Tones.* The encoder shall have timing circuitry that will automatically allow for the generation of the two tones simultaneously for a period of not less than 20 seconds nor longer than 25 seconds.

(e) *Operating Temperature.* Encoders shall have the ability to operate with the above specifications of paragraphs (a), (b), (c), and (d) of this section within at least an ambient temperature range of from 0 to +50° C.

(f) *Operating Humidity.* Encoders shall have the ability to operate with the above specifications of paragraphs (a), (b), (c), and (d) of this section in a range of relative humidity of up to 95 percent.

(g) *Primary Supply Voltage Variation.* The encoder shall be capable of operation within the tolerances specified in this section during a variation in primary supply voltage of 85 percent to 115 percent of the rated value.

(h) *Testing Encoder Units.* Encoders not covered by the provision of § 73.943 shall be tested in the presence of a minimum RF field of 10 V/m at a frequency in the AM broadcast band and in the presence of a minimum of RF field of .5 V/m at a frequency in either the FM or TV broadcast bands to simulate actual working conditions. At least the parameters specified in paragraphs (a), (b), and (d) of this section shall be tested in the RF fields as specified.

(i) *Indicator Device.* The encoder shall be provided with a visual and/or aural indicator which clearly shows that the device is activated.

(j) *Switch Guard.* The switch used for initiating the automatic generation of the simultaneous tones shall be protected in a manner which will prevent accidental operation. This includes switching devices used in a remote control fashion.

## § 73.941 Decoder devices.

Decoder devices shall have detection and activation circuitry that will demute a broadcast receiver only upon the simultaneous detection of the two audio tones of 853 and 960 Hertz.

(a) For the purpose of preventing false responses, decoder devices, designed to utilize the two tones for broadcast receiver demuting, shall contain circuitry designed to meet the following specifications and thereupon be certified by the Commission.

(1) *Time Delay.* A time delay of a minimum of 8 seconds but not more than 16 seconds of tone reception shall be incorporated into the activation or demuting process to insure that the tones will be audible for a period of from 4 seconds to 17 seconds.

(2) *Operation Bandwidth.* The decoder circuitry shall not respond to tones which vary more than  $\pm 5$  Hz from each of the frequencies, 853 Hertz and 960 Hertz.

(b) *Reset Ability.* The decoder shall have a switching device which, when operated manually, resets the associated broadcast receiver to a muted state.

(c) *Operating Temperature.* Decoders shall have the ability to operate with the above specifications of (a) and (b) of this section within at least an ambient temperature range from 0 to +50° C.

## § 73.942 Acceptability of EBS Attention Signal equipment.

(a) An encoder device used for generating the EBS Attention Signal must be type accepted by following the procedures set forth in Subpart J of Part 2 of the Rules and Regulations. The data and information submitted shall show capability of the equipment to meet the requirements of § 73.940.

(b) A decoder device used for the detection of the EBS Attention Signal shall be certified following the applicable procedures set forth in Subpart J, Part 2 and Subpart B of Part 15 of the Rules and Regulations. This requirement shall also apply to combinations which include a receiver subject to certification and an EBS Attention Signal decoder which is an integral part of said receiver. The data and information submitted shall show capability of the equipment to meet the requirements of § 73.941.

## § 73.943 Individual construction of encoders and decoders.

(a) A station licensee who constructs decoders and encoders for use at his station and not for sale need not submit the fees otherwise required with certification and type acceptance applications.

(b) The provisions of § 73.942 (a) and (b) shall apply to encoders and decoders constructed by individual station licensees.

## § 73.961 Tests of the Emergency Broadcast System procedures.

Tests of the EBS procedures will be made at regular intervals as indicated below. Appropriate entries shall be made consistently in the station operating log

or consistently in the station program log on EBS Tests received and transmitted by broadcast stations.

(a) Weekly "500" Net Test Transmissions. Test transmissions of the National level interconnection facilities will be conducted on a random basis once each week. The tests will originate on an alternate basis from one of two origination points over a dedicated government teletypewriter network to the control points of the Radio and Television Broadcast Networks, participating communications common carriers, AP and UPI. A dedicated automatic telephone network will be used for confirmation purposes between the origination points and AP and UPI. These tests will be in accordance with procedures set forth in EBS SOP-2 which is furnished to the non-government entities concerned.

(b) Periodic AP and UPI Test Transmissions. AP and UPI will separately conduct test transmissions to AM, FM, and TV broadcast stations, on their Radio Wire Teletype Network, a maximum of twice a month on a random basis at times of their choice. These tests will be conducted in accordance with procedures set forth in EBS SOP-2 which is furnished to the non-government entities concerned and the EBS Checklist furnished to all broadcast stations.

(c) *Weekly Transmission Tests of the Attention Signal and Test Script.* Except as provided in paragraph (d) of this Section, these tests shall be conducted by all AM, FM and TV stations a minimum of once a week at random days and times between the hours of 8:30 a.m. local time and local sunset. These tests will

be conducted in accordance with procedures set forth in the EBS Checklist furnished to all broadcast stations, however, Class D non-commercial educational FM stations (those operating with 10 watts or less transmitter output power) need not transmit the two-tone attention signal.

(d) Tests of implementing procedures developed at the State and local levels may be conducted on a day-to-day basis as indicated in State EBS Operational Plans. Coordinated tests of EBS operational procedures for an entire State or Operational (Local) Area may be conducted in lieu of the Weekly Transmission Tests of the Attention Signal and Test Script required in paragraph (c) of this section.

(e) Stations originating emergency communications under this section shall be deemed to have conferred rebroadcast authority, as required by Section 325(a) of the Communications Act of 1934, as amended, and § 73.1207 of this Part.

【§ 73.961(c) revised eff. 4-30-80; III(80)-1】

**§ 73.962 Closed Circuit Tests of approved National Level interconnecting systems and facilities of the Emergency Broadcast System.**

(a) Tests of approved National level interconnecting systems and facilities of non-government entities voluntarily participating in the EBS will be conducted on a random or scheduled basis not more than once a month and not less than once every 3 months only after FCC approval. Time of test will be selected by both White House and National Industry Advisory Committee

(NIAC) representatives in coordination with the Defense Commissioner, FCC. Unless a random Closed Circuit Test has been selected, the FCC will notify the Networks, participating communications common carriers and Wire Services of the selected time window, four working days (holidays excluded) prior to the test.

(b) The details of these Closed Circuit Tests procedures are contained in the EBS Checklists issued to all broadcast stations and in SOP-2 issued by the FCC to those non-Government entities concerned.

(c) The radio networks, participating communications common carriers, AP and UPI will receive notification of closed circuit tests by a Closed Circuit Test Activation Message, followed by a NIAC Order Request Message.

(d) The National level EBS will be tested on a closed circuit basis. These test broadcasts will originate from a point selected by the White House with program feed circuitry connected to the Telephone Company Toll Test Center at points indicated by individual NIAC Orders. Participating communications common carriers will interconnect, as required, the facilities of the Radio Broadcast Networks, ABC, CBS, MBS, NBC, NPR, UPI-Audio and the Intermountain (IMN) Radio Broadcast Network as authorized by the NIAC Order associated with the Closed Circuit Test. The audio networks associated with the video networks of ABC-TV, CBS-TV, NBC-TV, and PBS shall not be utilized during closed circuit tests. The telephone companies are not authorized to add any of the independent stations participating in the EBS unless authorized by

the FCC. Authentication will be provided to the Telephone Company Toll Test Center or other program entry location responsible for the particular NIAC Order to be used as set forth in SOP-2. Authentication used in the Closed Circuit Test Messages will be the test words printed on the outside of the EBS Authenticator List (Red Envelope).

(e) Closed Circuit Test procedures for Radio Network affiliates and AP and UPI subscribers are as follows:

(1) Notification of a Closed Circuit Test will be received in accordance with procedures set forth in § 73.931(a) (1) and (2) and the EBS Checklist.

(2) Immediately monitor your radio network (ABC, CBS, IMN, MBS, NBC, NPR and UPI-Audio) and check your AP and UPI Radio Wire Teletype Network machine for the receipt of the Closed Circuit Test Activation Message. Verify authenticity using the test words printed on the outside cover of the current issue of the EBS Authenticator List (Red Envelope). Television networks do not participate in the Closed Circuit Tests.

(3) Continue to monitor your radio network for talkup, and the Closed Circuit Test Program.

(4) Enter the time of receipt of the Closed Circuit Test consistently in your station operating log or consistently in your program log.

(5) The Closed Circuit Test will terminate on the following aural Closed Cue as it appears in the text of the test program:

This concludes the Closed Circuit Test of the Emergency Broadcast System



§ 73.920 Operational (Local) Area.

This a geographical area which encompasses a number of contiguous communities as shown in the State EBS Operational Plan.

§ 73.921 State Emergency Broadcast System Operational Plan.

This plan contains the necessary guidance for the voluntary coordination between appropriate authorities (e.g. National Weather Service, Civil Defense, local or State government, etc.) and the broadcast industry to communicate with the general public during a State or local emergency situation. Additional procedural guides, SOP's and other implementing instructions should be developed at the State and local levels to insure effective operation of the EBS at the State and Operational (Local) Area levels.

§ 73.922 Emergency Broadcast System programming priorities.

(a) Program priorities for EBS are as follows:

- Priority One—Presidential Messages
- Priority Two—Operational (Local) Area Programming
- Priority Three—State Programming
- Priority Four—National Programming and News

(b) Participating stations that remain on the air during a National emergency situation must carry Presidential Messages "live" at the time of transmission. Activation of the National level EBS will preempt operation of the Operational (Local) Area or State level EBS.

(c) During a National emergency the Radio and Television (aural) Broadcast Network program distribution facilities shall be reserved exclusively for distribution of Presidential Messages and National Programming and News, National Programming and News which is not broadcast at the time of original transmission shall be recorded locally by the CPCS for broadcast at the earliest opportunity consistent with Operational (Local) Area requirements.

PARTICIPATION

§ 73.926 Participation in the Emergency Broadcast System.

(a) The FCC will send to new licensees an EBS authorization and a letter requesting their voluntary participation in the EBS. Stations are requested to accept or decline this authorization within 30 days of receipt. Should the request be declined, the EBS Authorization should be returned to FCC. In either event, an appropriate EBS Checklist and EBS station designation will be forwarded to the station manager.

(b) In existing licensee who is not already a participant and desires to participate voluntarily in the National level EBS must submit a written request to the FCC. The FCC may then issue an EBS Authorization.

(c) Any station may withdraw from EBS participation by giving 30 days written notice and by returning its EBS Authorization to the FCC.

(d) Any station that is denied participation in the National level EBS for any reason may apply to the Commission for review of the staff denial in accordance with § 1.115 of this chapter.

(e) Any AM, FM, or TV broadcast station licensee may, at the discretion of management, voluntarily participate in the State level and Operational (Local) Area level EBS in accordance with the provisions of State EBS Operational Plan. An EBS Authorization is not required.

§ 73.927 Participation by communications common carriers.

(a) Communications common carriers which have facilities available in place may, without charge, connect an independent broadcast station to networks operated by ABC, CBS, IMN, MBS, NBC, NPR, or PBS for the duration of the activation of the National level EBS; provided that the station has in service a local channel from the station's studio or transmitter directly to the broadcast source or a broadcast connection point.

(b) During the activation of the National level EBS, communications common carriers which have facilities in place may, without charge, connect an originating source associated with an appropriate NIAC Order from the nearest Exchange to a selected Test Center and then to the Radio and Television (aural) Broadcast Networks for the duration of the emergency; provided that:

(1) The originating source has in service a local channel from the originating point to the nearest Exchange.

(2) A NIAC Order covering this service is requested by the White House.

(c) Upon receipt of the Emergency Action Termination the communications common carriers shall:

(1) Disconnect the participating independent station.

(2) Disconnect the origination source.

(3) Restore the networks to their original configurations.

(d) During Closed Circuit Tests of the National level EBS using NIAC Orders, communications common carriers which have facilities in place may, without charge, connect an originating source associated with an appropriate NIAC Order from the nearest Exchange to a selected Test Center, and then to the Radio Networks. No participating independent station may be connected during the test unless authorized by the FCC. Upon termination of tests the Radio Networks shall be restored to their original configuration.

(e) Every such carrier rendering any such free service shall make and file, in duplicate, with the FCC, on or before the 31st day of July and on or before the 31st day of January of each year, reports covering the periods of 6 months ending on the 30th day of June and the 31st day of December respectively, next prior to said dates. These reports shall show in detail what

free service was rendered pursuant to this rule and the charges in dollars which would have accrued to the carrier for such services rendered if charges therefore had been collected at the published tariff rates.

#### EMERGENCY ACTIONS

##### § 73.931 Dissemination of Emergency Action Notification.

(a) National Level. The Emergency Action Notification (EAN) will be released at this level upon request of the White House. The EAN message is disseminated from the origination point on a dedicated teletypewriter network to control points of the Radio and TV Broadcast Networks (ABC, CBS, MBS, NBC, NPR, UPI-Audio, ABC-TV, CBS-TV, NBC-TV and PBS), participating Communications Common Carriers, AP and UPI. The EAN is then further disseminated as follows by:

(1) The internal alerting facilities of the Radio and Television Broadcast Networks to all affiliates.

(2) The AP and UPI Radio Wire Teletype Networks to all subscribers (AM, FM, TV broadcast and other stations).

(3) Off-the-air monitoring of AM, FM, and TV broadcast stations and other licensees and regulated services.

Receipt of the EAN via any one of the above arrangements is sufficient to begin emergency actions set forth in § 73.933.

(b) State Level. The dissemination arrangements for the EAN at this level originate from State and Federal government authorities to the Originating Primary Relay Station. The management of this station may, at its discretion, activate the EBS at this level under the provisions of § 73.935 (a). The EBS will be activated in accordance with § 73.931 (a) (3) and the State EBS Operational Plan.

(c) Operational (Local) Area Level. The dissemination arrangements for the EAN at this level originate from Operational (Local) Area authorities to the Primary Station designated as the CPCS for the area. The management of this Primary Station may, at its discretion, activate the EBS at this level under the provisions of § 73.935 (a). The EBS will be activated in accordance with § 73.931 (a) (3) and the State EBS Operational Plan.

(d) Prior to commencing routine operation or originating any emissions under program test, equipment test, experimental, or other authorizations or for any other purpose, licensees or permittees shall first ascertain whether the EBS has been activated by one or all of the following methods:

(1) Monitor the radio and TV network facilities.

(2) Check the Radio Press Wire Service (AP and UPI).

(3) Monitor the Primary CPCS Station and/or the Primary Relay Station for your Operational (Local) Area.

If so, operation shall be in accordance with this subpart of the rules.

##### § 73.932 Radio monitoring and Attention Signal transmission requirements.

(a) Monitoring Requirement To insure effective off-the-air signal monitoring (§ 73.931 (a) (3)) all broadcast station licensees must install and operate, during their hours of broadcast operation, equipment capable of receiving the Attention Signal and emergency programming transmitted by other broadcast stations. This equipment must be maintained in operative condition, including arrangements for human listening watch or automatic alarm devices. This equipment must be installed in the broadcast station, either at the transmitter control point and/or studio location, in such a way that it enables the broadcast station staff, at normal duty locations, to be alerted instantaneously upon the receipt of the attention signal and to immediately monitor the emergency programming. For situations where broadcast stations are co-owned and co-located (e.g., an AM and FM licensed to the same entity at the same location) with a combined studio facility, only one receiver is required if installed in the combined studio facility. The off-the-air signal monitoring assignment of each broadcast station is specified in the State EBS Operational Plan.

(b) Transmission Requirement. All broadcast licensees, except noncommercial educational FM Broadcast Stations of 10 Watts or less, must install, operate, and maintain equipment capable of generating the Attention Signal (§ 73.906) to modulate the transmitter so that the signal may be broadcast to other broadcast stations. This signal is used to alert other broadcast stations to the fact that the EBS is being activated at the National, State or local level. It is also used during the Weekly Tests involving the transmission and reception of the Attention Signal and Test Script in accordance with § 73.961 (c). This equipment must be installed in the broadcast station either at the transmitter control point and/or studio location in such a way that it enables the broadcast station staff at normal duty locations to initiate the two-tone transmission. For situations where broadcast stations are co-owned and co-located (e.g., an AM and FM licensed to the same entity at the same location) with a combined studio facility, only one generator is required if installed in the combined studio facility.

(c) The licensee has the responsibility to insure that the equipment used for off-the-air signal monitoring and generating the EBS Attention Signal is in functioning condition during all times the station is in operation, and to determine the cause of any failure to receive the Weekly Transmission Tests as described in paragraph (c) of § 73.961.

(d) In the event that the equipment for receiving the Attention Signal and emergency programming transmitted by other broadcast stations, or the equipment for generating the Attention Signal be-

comes defective, the station may operate without the defective equipment pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission provided that:

(1) Appropriate entries shall be made in the station operating or program log, indicating reasons why Weekly Test Transmissions were not received or conducted and;

(2) Appropriate entries shall be made in the maintenance log of the station showing the date and time the equipment was removed and restored to service.

(e) If conditions beyond the control of the licensee prevent the restoration of the defective equipment to service within the above allowed period, informal request in accordance with Section 1.549 of this chapter may be filed with the Engineer in Charge of the radio district in which the station is operating for such additional time as may be required to complete repairs of the defective equipment.

**§ 73.933 Emergency Broadcast System operation during a National Level emergency.**

(a) An EBS Checklist will be posted at normal duty positions where it shall be immediately available to broadcast station personnel responsible for EBS actions. This Checklist summarizes the procedures to be followed upon receipt of a National level Emergency Action Notification or Termination Message in accordance with arrangements described in § 73.931 (a).

(b) Immediately upon receipt of an EAN Message all licensees will proceed as follows:

(1) Monitor the radio and TV network facilities for further instructions from the network control point.

(2) Check the Radio Press Wire Service (AP and UPI). Verify the authenticity of message with current EBS Authenticator List (Red Envelope).

(3) Monitor your EBS monitoring assignment (See State EBS Operational Plan) for the receipt of any further instructions.

(4) Discontinue normal programming and follow the transmission procedures set forth in the appropriate EBS Checklist.

(i) Primary CPCS, Originating Primary Relay, Primary Relay, and Primary stations follow the transmission procedures and make the announcements under the National Level Instructions of the EBS Checklist for Participating Stations.

(ii) Non-participating stations follow the transmission procedures and make the announcements under the National Level Instructions of the EBS Checklist for Non-Participating Stations. Following the announcement, non-participating stations are required to remove their carriers from the air and monitor for the Emergency Action Termination.

(5) Upon completion of the above transmission procedures:

(i) Participating stations will begin broadcast of a common emergency program. All stations shall carry

the common emergency program until receipt of the Emergency Action Termination Message. Programming priorities are set forth in § 73.922. Feeds will be provided by one or more of the following:

(a) Common Program Control Stations.

(b) Radio and Television Broadcast Networks.

(c) Originating Primary Relay and Primary Relay Stations in the State Relay Network.

(ii) Should it become apparent that the primary CPCS Station or Primary Relay Station of an Operational (Local) Area may not be able to provide an appropriate emergency program feed, other Primary Stations of the area may elect to assume the duties of providing a program feed. This should be done in an organized manner as designated in the State EBS Operational Plans.

(6) The Standby Script shall be used until program material is available. The text of the Standby Script is contained in the EBS Checklist for Participating Stations.

(7) TV broadcast stations shall display an appropriate EBS slide and then transit all announcements visually and aurally in the manner described in § 73.675 (b) of this Part.

(8) Stations which provide foreign language programming may transmit emergency announcements in the foreign language prior to broadcasting such announcements in English.

(9) Broadcast Stations in the International Broadcast Service will cease broadcasting immediately upon receipt of an Emergency Action Notification and will maintain radio silence. However, under certain conditions they may be issued appropriate emergency authorization by the FCC with concurrence of the Director, Office of Science and Technology Policy, in which event they will transmit only Federal government broadcasts or communications. The station's carrier must be removed from the air during periods of no broadcasts or communications transmissions.

(10) Stations may broadcast their call letters during an EBS activation. State and Operational (Local) Area identifications shall also be given.

(11) All stations operating and identified with a particular Operational (Local) Area will broadcast a common emergency program until receipt of the Emergency Action Termination.

(12) Broadcast stations holding an EBS Authorization are specifically exempt from complying with § 73.52 (pertaining to maintenance of operating power) while operating under this subpart of the rules.

(c) Upon receipt of an Emergency Action Termination Message all stations will follow the termination procedures set forth in the EBS Checklists.

(d) Stations originating emergency communications under this Section shall be deemed to have conferred rebroadcast authority, as required by Section 325 (a) of the Communications Act of 1934, as amended, and § 73.1207, on other participating stations.

## DAY-TO-DAY EMERGENCY OPERATIONS

## § 73.935 Day-to-day emergencies posing a threat to the safety of life and property; State Level and Operational (Local) Area Level Emergency Action Notification.

(a) State Level or Operational (Local) Area Level. The EBS may be activated at this level by AM, FM, and TV broadcast stations, at management's discretion, in connection with day-to-day emergency situations posing a threat to the safety of life and property. Examples of emergency situations which may warrant either an immediate or delay response by the licensee are: tornadoes, hurricanes, floods, tidal waves, earthquakes, icing conditions, heavy snows, widespread fires, discharge of toxic gases, widespread power failures, industrial explosions, and civil disorders.

(b) Stations originating emergency communications under this Section shall be deemed to have conferred rebroadcast authority, as required by Section 325 (a) of the Communications Act of 1934, as amended, and § 73.1207 of this Part, on other participating stations.

## § 73.936 Emergency Broadcast System operation during a State Level emergency.

(a) An EBS Checklist will be posted at normal duty positions where it shall be immediately available to broadcast station personnel responsible for EBS action.

(b) Operations will be conducted in accordance with the provisions of the State EBS Operational Plan.

(c) An EBS Authorization is not required for a broadcast station to participate in the operation of the State level EBS.

(d) Immediately upon receipt of a State level Emergency Action Notification message all licensees which are voluntarily participating, may, at the discretion of management, proceed as follows:

(1) Monitor the State Relay Network (Primary Relay Stations) for receipt of any further instructions from the Originating Primary Relay Station.

(2) Monitor the Primary Stations designated as the CPCS for your Operational (Local) Area for receipt of any further instructions.

(3) All licensees participating in the State level EBS shall discontinue normal programming and follow the transmission procedures set forth in the appropriate EBS Checklist and State EBS Operational Plan (§ 73.921) under the State and Local Level Instructions. Stations which provide foreign language programming may transmit emergency announcements in the foreign language prior to broadcasting such announcements in English. TV broadcast stations shall display an appropriate EBS slide and then transmit all announcements visually and aurally in the manner described in § 73.675 (b).

(4) Upon completion of the above transmission pro-

cedures, resume normal programming until receipt of the cue from the CPCS for your Operational (Local) Area, or Primary Relay Station of the State EBS Network. At that time begin broadcasting the State level common emergency program received from one of the following sources:

(i) Common Program Control Station for your Operational (Local) Area.

(ii) Any Primary Relay Station of the State Relay Network.

(5) All licensees may resume normal broadcast operations upon conclusion of the State level EBS broadcast.

## § 73.937 Emergency Broadcast System operation during an Operational (Local) Area Level emergency.

(a) An EBS Checklist will be posted at normal duty positions where it shall be immediately available to broadcast station personnel responsible for EBS actions.

(b) Operations will be conducted in accordance with the provisions of the State EBS Operational Plan.

(c) An EBS Authorization is not required for a broadcast station to participate in the operation of the local level EBS.

(d) Immediately upon receipt of an Operational (Local) Area level Emergency Action Notification all licensees which are voluntarily participating, may, at the discretion of management, proceed as follows:

(1) Monitor the Primary Station designated as the CPCS for your Operational (Local) Area for the receipt of any further instructions.

(2) Monitor the Primary Relay Station for your Operational (Local) Area for receipt of any further instructions.

(3) All licensees participating in the Operational (Local) Area level EBS shall discontinue normal programming and follow the transmission procedures set forth in the appropriate EBS Checklist and State EBS Operational Plan (§ 73.921) under the State and Local Level Instructions. Stations which provide foreign language programming may transmit emergency announcements in the foreign language prior to broadcasting such announcements in English. TV broadcast stations shall display an appropriate EBS slide and then transmit all announcements visually and aurally in the manner described in § 73.1250 (h) of this Part.

(4) Upon completion of the above transmission procedures, resume normal programming until receipt of the cue from the CPCS for your Operational (Local) Area. At that time begin broadcasting the common emergency program received from one of the following sources for your Operational (Local) Area:

(i) Common Program Control Station.

(ii) Primary Relay Station.

(5) All licensees may resume normal broadcast operations upon conclusion of the Operational (Local) Area level EBS broadcast.

(6) Following the Closing Cue as indicated in paragraph (e) (5) of this section AP and UPI subscribers only will receive a "Closed Circuit Test Termination Message" Record time of receipt of this message as

indicated in paragraph (e) (4) of this section.

(f) The Federal Communications Commission may request a report of a Closed Circuit Test as deemed appropriate in a format prescribed by the Commission.



## SUBPART H—RULES APPLICABLE TO ALL BROADCAST STATIONS

### SCOPE

#### § 73.1001 Scope.

(a) The rules in this Subpart are common to all AM, FM and TV broadcast services, commercial and noncommercial.

(b) Rules in Part 73 which apply exclusively to a particular broadcast service are contained in the following: AM, Subpart A; FM, Subpart B; Noncommercial Educational FM, Subpart C; and TV, Subpart E.

(c) Certain provisions in this Subpart apply to International Broadcast Stations (Subpart F, Part 73) and Television Broadcast Translator Stations (Subpart G, Part 74) where the rules for those services so provide.

(d) The provisions of this Part applying to licensees also apply to holders of construction permits (permittees).

#### § 73.1010 Cross reference to rules in other Parts.

Certain rules applicable to broadcast services, some of which are also applicable to other services, are set forth in the following Volumes and Parts of the FCC Rules and Regulations:

(a) Part 1 (Volume I), "Practice and Procedure."

(1) Subpart A, "General Rules of Practice and Procedure" (Sections 1.1 to 1.120).

(2) Subpart B, "Hearing Proceedings" (Sections 1.201 to 1.363).

(3) Subpart C, "Rule Making Proceedings" (Sections 1.399 to 1.430).

(4) Subpart G, "Schedule of Fees" (Sections 1.1101 to 1.1120).

(5) Subpart H, "Ex Parte Presentations" (Sections 1.1201 to 1.1251).

(6) Subpart I, "Procedures Implementing the National Environmental Policy Act of 1969" (Sections 1.1301 to 1.1319).

(b) Part 2 (Volume II), "Frequency Allocations and Radio Treaty Matters, General Rules and Regulations," including Subparts A, "Definitions," B, "Allocation, Assignments, and Use of Radio Frequencies," C, "Emissions," D, "Call Signs and Other Forms of Identifying Radio Transmissions," G, "Treaties and Other International Agreements," and J, "Equipment Authorization Procedures—Type Approval; Type Acceptance; Certification."

(c) Part 13 (Volume I), "Commercial Radio Operators."

(d) Part 17 (Volume I), "Construction, Marking, and Lighting of Antenna Structures."

(e) Part 74 (Volume III), "Experimental, Auxiliary and Special Broadcast, and Other Program Distributional Service" including Subparts on the following stations: A, "Experimental Television—," B, "Experimental Facsimile—," C, "Developmental—," "Remote Pickup—," E, "Aural STL and Intercity Relay—," F,

"Television Auxiliary—," G, "Television Broadcast Translator—," H, "Low Power Auxiliary—," I, "Instructional Television Fixed Service," L, "FM Translator and Booster—."

#### § 73.1020 Station license period.

(a) Initial licenses for broadcast stations will ordinarily be issued for a period running until the date specified in this Section for the State or Territory in which the station is located. If issued after such date, it will run to the next renewal date determined in accordance with this section; and, when renewed, will normally be renewed for 3 years. If the FCC finds that the public interest, convenience, and necessity will be served thereby, it may issue either an initial license or a renewal thereof for a lesser term. The time of expiration of normally issued initial and renewal licenses will be 3 a.m., local time, on the following dates and at 3-year intervals thereafter:

(1) Delaware and Pennsylvania, August 1, 1978.

(2) Maryland, District of Columbia, Virginia and West Virginia, October 1, 1978.

(3) North Carolina and South Carolina, December 1, 1978.

(4) Florida, Puerto Rico and Virgin Islands, February 1, 1979.

(5) Alabama and Georgia, April 1, 1979.

(6) Arkansas, Louisiana and Mississippi, June 1, 1979.

(7) Tennessee, Kentucky and Indiana, August 1, 1982.

(8) Ohio and Michigan, October 1, 1982.

(9) Illinois and Wisconsin, December 1, 1982.

(10) Iowa and Missouri, February 1, 1983.

(11) Minnesota, North Dakota, South Dakota, Montana and Colorado, April 1, 1983.

(12) Kansas, Oklahoma and Nebraska, June 1, 1983.

(13) Texas, August 1, 1983.

(14) Wyoming, Nevada, Arizona, Utah, New Mexico and Idaho, October 1, 1983.

(15) California, December 1, 1983.

(16) Alaska, American Samoa, Guam, Hawaii, Oregon, and Washington; February 1, 1981.

(17) Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont, April 1, 1981.

(18) New Jersey and New York, June 1, 1981.

(b) The cutoff date for the filing of applications mutually exclusive with, and petitions to deny, renewal applications, see § 73.3516(e) of this Chapter.

【§ 73.1020(a)(16) revised eff. 4-30-80; III(80)-1】

#### § 73.1030 Notifications concerning interference to Radio Astronomy, Research and Receiving Installations.

(a) *Radio Astronomy and Radio Research Installations.* In order to minimize harmful interference at the National Radio Astronomy Observatory site located at Green Bank, Pocahontas County, West Virginia, and at the Naval Radio Research Observatory at Sugar Grove,

Pendleton County, West Virginia, an applicant for authority to construct a new broadcast station or for authority to make changes in the frequency, power, antenna height, or antenna directivity of an existing station within the area bounded by 39°15' N on the north, 78°30' W on the east, 37°30' N on the south, and 80°30' W on the west shall, at the time of filing such application with the FCC, simultaneously notify the following:

Director, National Radio Astronomy Observatory  
P.O. Box No. 2  
Green Bank, West Virginia 21911

The notification shall be in writing and set forth the particulars of the proposed station, including the geographical coordinates of the antenna, antenna height, antenna directivity if any, proposed frequency, type of emission and power. In addition, the applicant shall indicate in his application to the FCC the date notification was made to the observatory. After receipt of such applications, the FCC will allow a period of 20 days for comments or objections in response to the notifications indicated. If an objection to the proposed operations is received during the 20-day period from the National Radio Astronomy Observatory for itself or on behalf of the Naval Radio Research Observatory, the FCC will consider all aspects of the problem and take whatever action is deemed appropriate.

(b) *Radio Receiving Installations.* Protection for Table Mountain Radio Receiving Zone, Boulder County, Colorado: Applicants for a station authorization to operate in the vicinity of Boulder County, Colorado, under this part are advised to give due consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from harmful interference. These are the Research Laboratories of the Department of Commerce, Boulder County, Colorado. To prevent degradation of the present ambient radio signal level at the site, the Department of Commerce seeks to ensure that field strengths at 40°07'50" N. latitude, 105°14'40" W. longitude, resulting from new assignments (other than mobile stations) or from the modification or relocation of existing facilities do not exceed the following values:

Frequency range	Field strength (mV/m) in authorized bandwidth of service	Power flux density <sup>1</sup> (dBW/m <sup>2</sup> ) in authorized bandwidth of service
Below 540 kHz.....	10	-65.8
540 to 1600 kHz.....	20	-59.8
1.6 to 470 MHz.....	10	-65.8
470 to 890 MHz.....	30	-56.2
Above 890 MHz.....	1	-85.8

<sup>1</sup> Equivalent values of power flux density are calculated assuming a free-space characteristic impedance of 376.7 = 120π ohms.

<sup>2</sup> Space stations shall conform to the power flux density limits at the earth's surface specified in appropriate parts of the FCC rules, but in no case should exceed the above levels in any 4kHz band for all angles of arrival.

(1) Advance consultation is recommended particularly for those applicants who have no reliable data which indicate whether the field strength or power flux

density figures in the above table would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether coordination is recommended:

- (i) All stations within 1.5 miles;
- (ii) Stations within 3.0 miles with 50 watts or more effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;
- (iii) Stations within 10 miles with 1 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone;
- (iv) Stations within 50 miles with 25 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone.

(2) In advance of filing their applications with the FCC, applicants concerned are urged to communicate with the following:

Radio Frequency Management Coordinator  
Department of Commerce  
Research Support Services NOAA/R5X3  
Boulder Laboratories  
Boulder, Colorado 80303  
Telephone: 303-499-1000, Extensions 6548 or 6549

(3) The FCC will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Department of Commerce or proceedings to modify any authorization which may be granted which, in fact, delivers a signal at the reference point in excess of the field strength specified herein.

(c) Protection for Federal Communications Commission monitoring stations:

(1) Applicants in the vicinity of an FCC monitoring station for a radio station authorization to operate new transmitting facilities or changed transmitting facilities which would increase the field strength produced over the monitoring station over that previously authorized are advised to give consideration, prior to filing applications, to the possible need to protect the FCC stations from harmful interference. Geographical coordinates of the facilities which require protection are listed in Section 0.121 (c) of the Commission's Rules. Applications for stations (except mobile stations) which will produce on any frequency a direct wave fundamental field strength of *greater than 10 mV/m* in the authorized bandwidth of service (-65.8 dBW/m<sup>2</sup> power flux density assuming a free space characteristic impedance of 120 ohms) at the referenced coordinates may be examined to determine extent of possible interference. Depending on the theoretical field strength value and existing root-sum-square or other ambient radio field signal levels at the indicated coordinates, a clause protecting the monitoring station may be added to the station authorization.

(2) In the event that calculated value of expected field exceeds 10 mV/m (-65.8 dBW/m<sup>2</sup>) at the reference coordinates, or if there is any question whether field

strength levels might exceed the threshold value, advance consultation with the FCC to discuss any protection necessary should be considered. Prospective applicants may communicate with: Chief, Field Operations Bureau, Federal Communications Commission, Washington, D.C. 20554. Telephone (202) 632-6980.

(3) Advance consultation is suggested particularly for those applicants who have no reliable data which indicate whether the field strength of power flux density figure indicated would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether an applicant should coordinate:

(i) All stations within 2.4 kilometers (1.5 statute miles);

(ii) Stations within 4.8 kilometers (3 statute miles) with 50 watts or more averaged effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Monitoring Station.

(iii) Stations within 16 kilometers (10 statute miles) with 1 kW or more average ERP in the primary plane of polarization in the azimuthal direction of the Monitoring Station;

(iv) Stations within 80 kilometers (50 statute miles) with 25 kW or more average ERP in the primary plane of polarization in the azimuthal direction of the Monitoring Station;

(4) Advance coordination for stations operating above 1000 MHz is recommended only where the proposed station is in the vicinity of a monitoring station designated as a satellite monitoring facility in Section 0.121 (c) of the Commission's Rules and also meets the criteria outlined in paragraphs (2) and (3) above.

(5) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Federal Communications Commission or modification of any authorization which will cause harmful interference.

#### § 73.1120 Station location.

(a) Each AM, FM and TV broadcast station will be licensed to the principal community or other political subdivision which it primarily serves. This principal community (city, town or other political subdivision) will be considered to be the geographical station location.

(b) AM and FM stations (not TV stations) will be licensed to serve more than one community or other political subdivision only where a satisfactory showing is made.

(1) That each such place meets all requirements of § 73.1125 with respect to the location of main studios;

(2) That the station can and will originate a substantial number of local live programs from each place; and

(3) That the requirements as to origination of programs in § 73.1130 would place an unreasonable burden on the station if it were licensed to serve only one community or other political subdivision.

(c) A station licensed to serve more than one community shall be considered to be located in and shall maintain main studios in each such place.

(1) For such licensed stations, the requirements regarding program origination in § 73.1130 shall be fulfilled by originating programs from any, or all, of the main studios or other studios or remote points situated in any or all of the places in which the main studios are located.

#### § 73.1125 Station main studio location.

(a) Each AM, FM and TV broadcast station shall maintain a main studio in the station's principal community which it is licensed to serve, except:

(1) AM stations licensed as synchronous amplifier transmitters ("AM boosters") or,

(2) AM stations whose main studio is located at the station transmitter which is situated outside the station's principal community of license or, an FM station, commonly owned with such AM station, and licensed to the same principal community, whose main studio may also be co-located at the commonly owned AM station's transmitter or,

(3) AM, FM or TV stations, when good cause exists for locating the main studio outside the principal community to be served and that to do so would be consistent with operation of the station in the public interest.

(b) Relocation of the main studio may be made:

(1) From one point to another within the principal community or from a point outside the principal community to one within it, without specific FCC authority, but notification to the FCC in Washington shall be made promptly; however,

(2) From a point within the principal community to one outside it or from one such point outside the community to another, only by first securing modification of construction permits or license. (FCC Forms 301 for commercial stations and 340 for noncommercial educational stations.)

(3) Two exceptions to paragraph (b) (2) of this section are:

(i) AM stations moving their main studio to their transmitter site wherever it is located; and,

(ii) FM station, commonly owned with an AM station, and licensed to the same community, whose main studio is co-located.

(iii) Notification to the FCC in Washington shall be made promptly of such relocations described in paragraphs (b) (3) (i) and (ii) of this Section.

(c) Where the principal community to be served does not have specifically defined political boundaries, applications will be considered on a case-by-case basis by the FCC to determine if the main studio is located within the principal community to be served.

#### § 73.1130 Station program origination.

(a) More than 50% of an AM, FM or TV station's non-network programs shall originate from the station's main studio or from points which are remote

from the main studio so long as such origination points are situated in the principal community which the station is licensed to serve.

(b) Such originations shall be computed on the basis of total duration or total length of time of programs, and not on the number of separate programs.

#### § 73.1150 Transferring a station.

(a) In transferring a broadcast station, the licensee may retain no right of reversion of the license, no right to reassignment of the license in the future, and may not reserve the right to use the facilities of the station for any period whatsoever.

(b) No license, renewal of license, assignment of license or transfer of control of a corporate licensee will be granted or authorized if there is a contract, arrangement or understanding, express or implied, pursuant to which, as consideration or partial consideration for the assignment or transfer, such rights, as stated in paragraph (a) of this section, are retained.

#### § 73.1201 Station identification.

(a) *When regularly required.* Broadcast station identification announcements shall be made: (1) At the beginning and ending of each time of operation, and (2) hourly, as close to the hour as feasible, at a natural break in program offerings. Television broadcast stations may make these announcements visually or aurally.

(b) *Content.* (1) Official station identification shall consist of the station's call letters immediately followed by the community or communities specified in its license as the station's location: *Provided*, that the name of the licensee or the station's frequency or channel number, or both, as stated on the station's license may be inserted between the call letters and station location. No other insertion is permissible.

(2) Where given specific written authorization to do so, a station may include in its official station identification the name of an additional community or communities, but the community to which the station is licensed must be named first.

(1) Such applications for additional-community identification will be considered only if the community or communities are within the station's principal-city contours as defined by § 73.188(b) for AM stations; § 73.315(a) for FM stations and § 73.685(a) for TV stations.

(3) A licensee shall not in any identification announcements, promotional announcements or any other

broadcast matter either lead or attempt to lead the station's audience to believe that the station has been authorized to identify officially with cities other than those permitted to be included in official station identifications under subparagraphs (1) and (2) of this paragraph.

**NOTE:** Commission interpretations of this paragraph may be found in a separate Public Notice issued Oct. 30, 1967, entitled "Examples of Application of Rule Regarding Broadcast of Statements Regarding a Station's Licensed Location." (FCC 67-1132; 10 FCC 2d 407).

(c) *Channel—(1) General.* Except as otherwise provided in this paragraph, in making the identification announcement the call letters shall be given only on the channel identified thereby.

(2) *Simultaneous AM-FM broadcasts.* If the same licensee operates an FM broadcast station and a AM broadcast station and simultaneously broadcasts the same programs over the facilities of both such stations, station identification announcements may be made jointly for both stations for periods of such simultaneous operation. If the call letters of the FM station do not clearly reveal that it is an FM station, the joint announcement shall so identify it.

(3) *Satellite operation.* When programming of a broadcast station is rebroadcast simultaneously over the facilities of a satellite station, the originating station may make identification announcements for the satellite station for periods of such simultaneous operation.

(i) In the case of a television broadcast station, such announcements, in addition to the information required by paragraph (b) (1) of this section, shall include the number of the channel on which each station is operating.

(ii) In the case of aural broadcast stations, such announcements, in addition to the information required by paragraph (b) (1) of this section, shall include the frequency on which each station is operating.

【§ 73.1201(b) (2) revised, (b) (2) (i) added; Eff. 6-16-80; III(80)-1】

#### § 73.1202 Public notice of licensee obligations.

(a) Each licensee of a commercial AM, FM, or TV broadcast station shall make an announcement informing the public of the licensee's obligations to the people and of the appropriate method for individuals to express their opinions of the station's operation. Such announcements shall be aired on the first and sixteenth

day of each calendar month throughout the license period except during the period beginning on the first day of the sixth full calendar month prior to license expiration, and ending on the last day of the next to last full calendar month prior to expiration, during which time the renewal application notices in § 73.3580 shall be broadcast. Such announcements shall be aired during the following time periods:

(1) For TV stations, the announcement broadcast on the first day of each calendar month shall be scheduled between 6 p.m. and 11 p.m. (5 p.m. and 10 p.m. Central and Mountain time). The announcement scheduled on the sixteenth day of each calendar month shall be broadcast during the following four-hour time periods in rotating order: 6 a.m. to 10 a.m., 10 a.m. to 2 p.m., and 2 p.m. to 6 p.m., beginning with the 6 a.m. to 10 a.m. period.

(2) For radio stations, the announcement broadcast on the first day of each calendar month shall be scheduled either between 7 a.m. and 9 a.m. or between 4 p.m. and 6 p.m. The announcement broadcast on the sixteenth day of each calendar month shall be scheduled during the following time periods in rotating order: 9 a.m. to 1 p.m., 1 p.m. to 4 p.m., and 6 p.m. to 10 p.m., beginning with the 9 a.m. to 1 p.m. period. For stations which do not operate between 7 a.m. and 9 a.m. or between 4 p.m. and 6 p.m., the announcement broadcast on the first day of each calendar month shall be scheduled during the first two hours of broadcast operation and the announcements broadcast on the sixteenth day of each month shall be scheduled during all the other three-hour time periods during the broadcast day in rotating order.

(b) If an emergency arises which prevents the broadcasting of the announcement at the scheduled time, the announcement shall be broadcast on the day following the ending of such emergency at the identical time period in the rotating order specified above.

(c) The announcement for both radio and TV stations shall contain the following information (stations broadcasting in a foreign language should broadcast the announcement in that language):

(1) The station's call letters.

(2) A statement that on (give date of last renewal grant) the station was granted a license by the Federal Communications Commission to serve the public interest as a public trustee until (give date of license expiration).

(3) A statement that on (give the anniversary date of the deadline for filing of the renewal application) the station places in its local public inspection file a list of what the licensee considers to have been some of the significant problems and needs of the service area during the preceding twelve months and some of the programs the station broadcast to help meet those problems and needs.

(4) A statement that the station invites any specific suggestions or comments the public may have regarding station operation and the licensee's programming efforts.

(5) The name and address to which comments should be mailed.

(6) A statement that, unless otherwise requested, all letters received will be available for public inspection during regular business hours.

(7) *Sample announcement.*

"On (date of last renewal grant), (station's call letters) was granted a license by the Federal Communications Commission to serve the public interest as a public trustee until (date of license expiration). Each (anniversary date of deadline for filing renewal application) we place in our local public inspection file a list of what we consider to have been some of the significant problems and needs of our service area during the preceding twelve months and some of our programming to help meet those problems and needs. We invite you to send specific suggestions or comments concerning our station operation and programming efforts to (name and mailing address). Unless otherwise requested, all letters received will be available for public inspection during regular business hours."

(8) For TV stations, the licensee's name and address for sending comments shall be given visually as well as orally by the announcer.

(d) During the period beginning the first day of the last full calendar month prior to expiration of the license and until the date of the license renewal, stations shall broadcast the appropriate announcement described herein, except that, in lieu of paragraph (c) (2) above, licensees shall broadcast a statement that the station is licensed by the Federal Communications Commission to serve the public interest as a public trustee and shall *not* mention the date of the last renewal grant or the expiration date of the license period.

(1) Following the date of renewal and commencing on the first or sixteenth day of the month (whichever

comes first), the regular announcement shall be resumed and shall be broadcast in accordance with the schedule in paragraph (a) above.

(e) All written comments and suggestions received from the public regarding operation of the station shall be maintained in the local public inspection file, unless the letter writer has requested that the letter not be made public or when the licensee feels that it should be excluded from public inspection because of the nature of its content, such as a defamatory or obscene letter.

(1) Letters shall be retained in the local public inspection file for three years from the date on which they are received by the licensee.

(2) Letters received by TV licensees only shall be placed in one of the following separated subject categories: programming or non-programming. If comments in a letter relate to both categories, the licensee shall file it under the category to which the writer has given the greater attention.

#### § 73.1205 Fraudulent billing practices.

(a) No licensee of an AM, FM, or television broadcast station shall knowingly issue or knowingly cause to be issued to any local, regional or national advertiser, advertising agency, station representative, manufacturer, distributor, jobber, or any other party, any bill, invoice, affidavit or other document which contains false information concerning the amount actually charged by the licensee for the broadcast advertising for which such bill, invoice, affidavit or other document is issued, or which misrepresents the nature or content of such advertising, or which misrepresents the quantity of advertising actually broadcast (number or length of advertising messages) or which substantially and/or materially misrepresents the time of day at which it was broadcast, or which misrepresents the date on which it was broadcast.

(b) Where a licensee and any program supplier have entered into a contract or other agreement obligating the licensee to supply any document providing specified information concerning the broadcast of the program or program matter supplied, including noncommercial matter, the licensee shall not knowingly issue such a document containing information required by the contract or agreement that is false.

(c) A licensee shall be deemed to have violated this section if it fails to exercise reasonable diligence to see that its agents and employees do not issue documents

containing the false information specified in paragraphs (a) and (b) above.

**NOTE.**—Commission interpretations of the rule may be found in a separate Public Notice issued June 10, 1976, entitled "Applicability of the Fraudulent Billing Rule," FCC 76-489 FR Doc. 76-17014, page 23673 (41 FR 23673).

#### § 73.1206 Broadcast of telephone conversations.

Before recording a telephone conversation for broadcast, or broadcasting such a conversation simultaneously with its occurrence, a licensee shall inform any party to the call of the licensee's intention to broadcast the conversation, except where such party is aware, or may be presumed to be aware from the circumstances of the conversation, that it is being or likely will be broadcast. Such awareness is presumed to exist only when the other party to the call is associated with the station (such as an employee or part-time reporter), or where the other party originates the call and it is obvious that it is in connection with a program in which the station customarily broadcasts telephone conversations.

#### § 73.1207 Rebroadcasts.

(a) The term "rebroadcast" means reception by radio of the programs or other transmissions of a broadcast or any other type of radio station, and the simultaneous or subsequent retransmission of such programs or transmissions by a broadcast station.

(1) As used in this Section, "program" includes any complete program or part thereof.

(2) The transmission of a program from its point of origin to a broadcast station entirely by common carrier facilities, whether by wire line or radio, is not considered a rebroadcast.

(3) The broadcasting of a program relayed by a remote pickup broadcast station is not considered a rebroadcast.

(b) No broadcast station may retransmit the program, or any part thereof, of another U.S. broadcast station without the express authority of the originating station. A copy of the written consent of the licensee originating the program must be kept by the licensee of the station retransmitting such program and made available to the FCC upon request.

(1) Stations originating emergency communications under a Detailed State EBS Operation Plan are deemed to have conferred rebroadcast authority to other participating stations.

(2) Permission must be obtained from the originating station to rebroadcast any FM station SCA subcarrier background music or other multiplex subscription program service.

(3) Programs originated by the Voice of America (VOA) and the Armed Forces Radio and Television Services (AFRTS) cannot, in general, be cleared for domestic rebroadcast, and may therefore be retransmitted only by special arrangements among the parties concerned.

(4) Except as otherwise provided by international agreement, programs originated by foreign broadcast stations may be retransmitted without the consent of the originating station.

(c) The transmission of messages of non-broadcast stations, other than stations in the personal radio services as stated in paragraph (e) of this section may be rebroadcast under the following conditions:

(1) The broadcasting of messages originated by privately owned non-broadcast stations may be done only upon the permission of the station licensee and with prior authorization from the FCC in Washington, D.C. Additionally, messages transmitted by common carrier stations may only be rebroadcast upon the permission of the originator of the message as well as the station licensee. FCC authority may be requested informally by telephone, to be followed with a written confirmation accompanied by the written consent of the station licensee of the originating station and the message originator of a common carrier station if transmission is rebroadcast.

(2) Except as provided for in paragraph (d) of this section, messages originated entirely by non-broadcast stations owned and operated by the Federal Government may be broadcast upon obtaining prior permission from the government agency originating the messages. Written notification must be sent to the FCC in Washington, D.C. within one week after such retransmission confirming that prior authorization for the transmissions had been obtained.

(d) The rebroadcasting of time signals originated by the Naval Observatory and the National Bureau of Standards and messages from the National Weather Service stations is permitted without specific authorization under the following procedures:

(1) *Naval Observatory Time Signals.*

(i) The time signals rebroadcast must be obtained by direct radio reception from a naval radio station, or by land line circuits.

(ii) Announcement of the time signal must be made without reference to any commercial activity.

(iii) Identification of the Naval Observatory as the source of the time signal must be made by an announcement, substantially as follows: "With the signal, the time will be . . . courtesy of the U.S. Naval Observatory."

(iv) Schedules of time signal broadcasts may be obtained upon request from the Superintendent, U.S. Naval Observatory, Washington, D.C. 20390.

(2) *National Bureau of Standards Time Signals.*

(i) Time signals for rebroadcast must be obtained by direct radio reception from a National Bureau of Standards (NBS) station.

(ii) Use of receiving and rebroadcasting equipment must not delay the signals by more than 0.05 second.

(iii) Signals must be rebroadcast live, not from tape or other recording.

(iv) Voice or code announcements of the call signs of NBS stations are not to be rebroadcast.

(v) Identification of the origin of the service and the source of the signals must be made by an announcement substantially as follows: "At the tone, 11 hours 25 minutes *Coordinated Universal Time*. This is a rebroadcast of a continuous service furnished by the National Bureau of Standards, Ft. Collins, Colo." No commercial sponsorship of this announcement is permitted and none may be implied.

(vi) Schedules of time signal broadcasts may be obtained from, and notice of use of NBS time signals for rebroadcast must be forwarded semiannually to:

National Bureau of Standards  
Radio Stations WWV/WWVB  
2000 East County Road 58  
Ft. Collins, Colorado 80524

(vii) In the rebroadcasting of NBS time signals, announcements will not state that they are standard frequency transmissions. Voice announcements of *Coordinated Universal Time* are given in voice every minute. Each minute, except the first of the hour, begins with an 0.8 second long tone of 1000 Hz at WWV and 1200 Hz tone at WWVII. The first minute of every hour begins with an 0.8 second long tone of 1500 Hz at both stations. This tone is followed by a 3-second pause, then the announcement, "National Bureau of Standards Time." This is followed by another 3-second pause before station identification. This arrangement allows broadcast stations sufficient time to retransmit



the hour time tone and the words "National Bureau of Standards Time" either by manual or automatic switching.

(viii) Time signals or scales made up from integration of standard frequency signals broadcast from NBS stations may not be designated as national standard scales of time or attributed to the NBS as originator. For example, if a broadcasting station transmits time signals obtained from a studio clock which is periodically calibrated against the NBS time signals from WWV or WWVH, such signals may not be announced as NBS standard time or as having been originated by the NBS.

**(3) National Weather Service Messages.**

(i) Messages of the National Weather Service must be rebroadcast within 1 hour of receipt.

(ii) If advertisements are given in connection with weather rebroadcast, these advertisements must not directly or indirectly convey an endorsement by the U.S. Government of the products or services so advertised.

(iii) Credit must be given to indicate that the rebroadcast message originates with the National Weather Service.

(e) A broadcast station may not rebroadcast, live or delayed, the transmissions of a Personal Radio Service station.

【§ 73.1207(a) (3) added, (b) and (c) revised eff. 4-30-80; III(80)-1】

**§ 73.1208 Broadcast of taped, filmed, or recorded material.**

(a) Any taped, filmed or recorded program material in which time is of special significance, or by which an affirmative attempt is made to create the impression that it is occurring simultaneously with the broadcast, shall be announced at the beginning as taped, filmed or recorded. The language of the announcement shall be clear and in terms commonly understood by the public. For television stations, the announcement may be made visually or aurally.

(b) Taped, filmed, or recorded announcements which are of a commercial, promotional or public service nature need not be identified as taped, filmed or recorded.

**§ 73.1209 References to time.**

Unless specifically designated as "standard (non-advanced)" or "advanced," all references to time contained in this part, and in license documents and other authorizations issued thereunder shall be understood to mean local time; i.e., the time legally observed in the community.

**§ 73.1210 TV/FM dual language broadcasting in Puerto Rico.**

(a) For the purpose of this section, dual-language broadcasting shall be understood to mean the telecasting of a program in one language with the simultaneous transmission, on the main channel of a participating FM broadcast station, of companion sound track information in a different language.

(b) Television broadcast licensees in Puerto Rico may enter into dual-language time purchase agreements with FM broadcast licensees, subject to the following conditions:

(1) All such agreements shall be reduced to writing and retained by the licensee for possible Commission inspection, in accordance with § 73.3613(d) of this Chapter.

(2) All such agreements shall specify that the FM licensee will monitor sound track material with a view to rejecting any material deemed to be inappropriate or objectionable for broadcast exposure.

(3) No television or FM broadcast station may devote more than 15 hours per week to dual-language broadcasting, nor may more than three (3) hours of such programming be presented on any given day.

(4) The program logs of participating stations shall clearly reflect all time segments within which dual-language programming is presented.

(5) Noncommercial educational television broadcast stations using the facilities of commercial broadcast stations shall take all necessary precautions to assure that the entire operation is conducted on a noncommercial basis and otherwise in accordance with § 73.621 of this Part.

**§ 73.1211 Broadcast of lottery information.**

(a) No licensee of an AM, FM or television broadcast station, except as in paragraph (c) of this section, shall broadcast any advertisement of or information concerning any lottery, gift enterprise, or similar scheme, offering prizes dependent in whole or in part upon lot or chance, or any list of the prizes drawn or awarded by means of any such lottery, gift enterprise or scheme, whether said list contains any part or all of such prizes. (18 U.S.C. 1304, 62 Stat. 763).

(b) The determination whether a particular program comes within the provisions of paragraph (a) of this section depends on the facts of each case. However, the Commission will in any event consider that a program comes within the provisions of paragraph (a) of this section if in connection with such program a prize consisting of money or other thing of value is awarded to any person whose selection is dependent in whole or in part upon lot or chance, if as a condition of winning or competing for such prize, such winner or winners are required to furnish any money or other thing of value or are required to have in their possession any product sold, manufactured, furnished or distributed by a sponsor of a program broadcast on the station in question. (See 21 FCC 2d 846).

(c) The provisions of paragraphs (a) and (b) of this Section shall not apply to an advertisement, list of prizes or other information concerning:

(1) A lottery conducted by a State acting under authority of State law when such information is broadcast:

(i) By a broadcast station licensed to a location in that State; or

(ii) By a broadcast station licensed to a location in an adjacent State which also conducts such a lottery. (18 U.S. Code 1307; 88 Stat. 1916).

(2) Fishing contests exempted under 18 U.S. Code 1305 (not conducted for profit, *i.e.*, all receipts fully consumed in defraying the actual costs of operation).

(d) For the purposes of paragraph (c) (1) of this Section:

(1) "Lottery" means the pooling of proceeds derived from the sale of tickets or chances and allotting those proceeds or parts thereof by chance to one or more chance takers or ticket purchasers. It does not include the placing or accepting of bets or wagers on sporting events or contests.

(2) A broadcast station licensed to a location in a State that conducts a State lottery may broadcast advertisements of or information concerning such lottery in its State of license and advertisements of or information concerning such lotteries conducted in any adjacent State. (See 18 U.S.C. 1307, FCC 75.) The exemption would, for example, permit a broadcast station licensed to a location in New York, which now conducts a lawful State Lottery, to broadcast advertisements of or information concerning the New York State Lottery as well as the lawful State Lotteries of Massachusetts, Connecticut, New Jersey and Pennsylvania, since these States are adjacent to New York, and also conduct a State Lottery. The exemption, however, would not permit a broadcast station licensed to a location in New York to broadcast information concerning the Maine or Michigan State Lotteries since those States are not adjacent to New York. Nor would the exemption permit a station licensed to a location in Virginia to broadcast information concerning the Maryland State Lottery, since although Virginia is adjacent to Maryland, Virginia does not conduct a State lottery.

**§ 73.1212 Sponsorship identification; list retention; related requirements.**

(a) When a broadcast station transmits any matter for which money, service, or other valuable consideration is either directly or indirectly paid or promised to, or charged or accepted by such station, the station, at the time of the broadcast, shall announce (1) that such matter is sponsored, paid for, or furnished, either in whole or in part, and (2) by whom or on whose behalf such consideration was supplied: *Provided, however*, That "service or other valuable consideration" shall not include any service or property furnished either without or at a nominal charge for use on, or in connection with, a broadcast unless it is so furnished in consideration for an identification of any person, product, service, trademark, or brand name beyond an identification reasonably related to the use of such service or property on the broadcast.

(i) For the purposes of this section, the term "sponsored" shall be deemed to have the same meaning as "paid for."

(b) The licensee of each broadcast station shall exercise reasonable diligence to obtain from its employ-

ees, and from other persons with whom it deals directly in connection with any matter for broadcast, information to enable such licensee to make the announcement required by this section.

(c) In any case where a report has been made to a broadcast station as required by section 508 of the Communications Act of 1934, as amended, of circumstances which would have required an announcement under this section had the consideration been received by such broadcast station, an appropriate announcement shall be made by such station.

(d) In the case of any political broadcast matter or any broadcast matter involving the discussion of a controversial issue of public importance for which any film, record, transcription, talent, script, or other material or service of any kind is furnished, either directly or indirectly, to a station as an inducement for broadcasting such matter, an announcement shall be made both at the beginning and conclusion of such broadcast on which such material or service is used that such film, record, transcription, talent, script, or other material or service has been furnished to such station in connection with the transmission of such broadcast matter: *Provided, however*, That in the case of any broadcast of 5 minutes' duration or less, only one such announcement need be made either at the beginning or conclusion of the broadcast.

(e) The announcement required by this section shall, in addition to stating the fact that the broadcast matter was sponsored, paid for or furnished, fully and fairly disclose the true identity of the person or persons, or corporation, committee, association or other unincorporated group, or other entity by whom or on whose behalf such payment is made or promised, or from whom or on whose behalf such services or other valuable consideration is received, or by whom the material or services referred to in paragraph (d) of this section are furnished. Where an agent or other person or entity contracts or otherwise makes arrangements with a station on behalf of another, and such fact is known or by the exercise of reasonable diligence, as specified in paragraph (b) of this section, could be known to the station, the announcement shall disclose the identity of the person or persons or entity on whose behalf such agent is acting instead of the name of such agent. Where the the material broadcast is political matter or matter involving the discussion of a controversial issue of public importance and a corporation, committee, association or other unincorporated group, or other entity is paying for or furnishing the broadcast matter, the station shall, in addition to making the announcement required by this section, require that a list of the chief executive officers or members of the executive committee or of the board of directors of the corporation, committee, association or other unincorporated group, or other entity shall be made available for public inspection at the location specified by the licensee under § 1.526 of this Chapter. If the broadcast is originated by a network, the list may, instead, be retained at the headquarters office

of the network or at the location where the originating station maintains its public inspection file under § 73.3526 of this Chapter. Such lists shall be kept and made available for a period of two years.

(f) In the case of broadcast matter advertising commercial products or services, an announcement stating the sponsor's corporate or trade name, or the name of the sponsor's product, when it is clear that the mention of the name of the product constitutes a sponsorship identification, shall be deemed sufficient for the purpose of this Section and only one such announcement need be made at any time during the course of the broadcast.

(g) The announcement otherwise required by section 317 of the Communications Act of 1934, as amended, is waived with respect to the broadcast of "want ad" or classified advertisements sponsored by an individual. The waiver granted in this paragraph shall not extend to a classified advertisement or want ad sponsorship by any form of business enterprise, corporate or otherwise. Whenever sponsorship announcements are omitted pursuant to this paragraph, the licensee shall observe the following conditions:

(1) Maintain a list showing the name, address, and (where available) the telephone number of each advertiser;

(2) Attach the list to the program log, if the station is required to keep such log, for the day when the broadcast was made; or retain separately if the station is not required to keep program logs, and

(3) Make this list available to members of the public who have a legitimate interest in obtaining the information contained in the list. Such list must be retained for a period of two years after broadcast.

(h) Any announcement required by section 317(b) of the Communications Act of 1934, as amended, is waived with respect to feature motion picture film produced initially and primarily for theatre exhibition.

**NOTE:** The waiver heretofore granted by the Commission in its Report and Order adopted November 16, 1960 (FCC 60-1369; 40 F.C.C. 95), continues to apply to programs filmed or recorded on or before June 20, 1963, when § 73.654, the predecessor television rule, went into effect.

(i) Commission interpretations in connection with the provisions of the sponsorship identification rules are contained in the Commission's Public Notice, entitled "Applicability of Sponsorship Identification Rules," dated May 6, 1963 (40 F.C.C. 141), as modified by Public Notice, dated April 21, 1975 (FCC 75-418). Further interpretations are printed in full in various

volumes of the Federal Communications Commission Reports.

【§ 73.1212 (g)(2) and (3) revised eff. 4-3-81; III (80)-1】

#### § 73.1213 Antenna structure, marking and lighting.

(a) The provisions of Part 17 of this Chapter (Construction, Marking and Lighting of Antenna Structures), require certain antenna structures be painted and/or lighted in accordance with the provisions of that Part. (See §§ 17.47 through 17.56.)

(b) The licensee or permittee of an AM, FM, or TV broadcast station, if the sole occupant of the antenna and/or the antenna supporting structure, is responsible for conforming to the requirements of §§ 17.47 through 17.56 of this chapter.

(c) If a common tower is used for antenna and/or antenna supporting purposes by more than one licensee or permittee of an AM, FM, or TV station or by one or more such licensees or permittees of any other service, each licensee or permittee shall be responsible for painting and lighting the structure when obstruction marking and lighting are required by Commission rules. However, each such licensee or permittee utilizing a common tower may, with the approval of the Commission in Washington, designate one of the licensees or permittees as responsible for painting and lighting the structure. Pursuant to Commission approval, such designated licensee or permittee shall be solely responsible for conforming to all Commission requirements of Part 17 of this Chapter regarding obstruction marking and lighting of antenna structures. (See §§ 17.47 through 17.56.) Requests for such approval shall be submitted in letter form, accompanied by copies of agreements between all participating licensees or permittees. A copy of the agreement and the Commission approval must be retained in each licensee's or permittee's station file, available for inspection by FCC representatives. In the event of default by the designated licensee of his responsibility, each of the licensees or permittees shall again be individually responsible for conforming to the requirements of the rules, pending Commission approval of a new agreement.

【§ 73.1213(a) revised eff. 4-30-80; III(80)-1】

#### § 73.1215 Specifications for indicating instruments.

The following requirements and specifications shall apply to indicating instruments used by broadcast stations:

(a) Linear scale instruments:

(1) Length of scale shall not be less than 2.3 inches (5.8 cm).

(2) Accuracy shall be at least 2 percent of the full scale reading.

(3) The maximum rating of the meter shall be such that it does not read off scale during modulation or normal operation.

(4) Scale shall have at least 40 divisions.

(5) Full scale reading shall not be greater than five times the minimum normal indication.

(b) Instruments having square-law scales:

(1) Meet the requirements of paragraphs (a) (1), (2), and (3) of this section for linear scale instruments.

(2) Full scale reading shall not be greater than three times the minimum normal indication.

(3) No scale division above one-third full scale reading shall be greater than one-thirtieth of the full scale reading. (Example: an ammeter meeting requirement (1) having full scale reading of 6 amperes is acceptable for reading currents from 2 to 6 amperes, provided no scale division between 2 and 6 amperes is greater than one-thirtieth of a 6 amperes, 0.2 ampere.)

(c) Instruments having logarithmic scales:

(1) Meet the requirements of paragraphs (a) (1), (2), and (3) of this section for linear scale instruments.

(2) Full scale reading shall not be greater than five times the minimum normal indication.

(3) No scale division above one-fifth full scale reading (in watts) shall be greater than one-thirtieth of the full scale reading. (Example: a wattmeter meeting requirement (3) having full scale reading of 1,500 watts is acceptable for reading power from 300 to 1,500 watts, provided no scale division between 300 and 1,500 watts is greater than one-thirtieth of 1,500 watts or 50 watts.)

(d) Instruments having expanded scales:

(1) Shall meet the requirements of paragraphs (a) (1), (2), and (3) of this Section for linear scale instruments.

(2) Full scale reading shall not be greater than five times the minimum normal indication.

(3) No scale division above one-fifth full scale reading shall be greater than one-fiftieth of the full scale reading. (Example: an ammeter meeting the requirement (1) is acceptable for indicating current from 1 to 5 amperes, provided no division between 1 and 5 amperes is greater than one-fiftieth of 5 amperes, 0.1 ampere.)

(e) Digital meters, printers, or other numerical read-out devices may be used in addition to or in lieu of

indicating instruments meeting the specifications of paragraphs (a), (b), (c) and (d) of this section. If a single digital device is used at the transmitter for reading and logging of operating parameters, either

(1) Indicating instruments meeting the above-mentioned specifications shall be installed in the transmitter and antenna circuit; or (2) a spare digital device shall be maintained at the transmitter with provision for its rapid substitution for the main device should that device malfunction. The readout of the device shall include at least three digits and shall indicate the value or a decimal multiple of the value of the parameter being read to an accuracy of at least 2 percent. The multiplier to be applied to the reading of each parameter shall be indicated at the operating position of a switch used to select the parameter for display, or on the face of an automatically printed log at least once each calendar day.

(f) No instrument which has been broken or appears to be damaged or defective, or the accuracy of which is questionable shall be used, until it has been checked, and if necessary repaired and recalibrated by the manufacturer or qualified instrument repair service. Repaired instruments shall not be used unless a certificate of calibration has been provided showing that the instrument conforms to the manufacturer's specifications for accuracy.

#### § 73.1216 Licensee-conducted contests.

A licensee that broadcasts or advertises information about a contest it conducts shall fully and accurately disclose the material terms of the contest, and shall conduct the contest substantially as announced or advertised. No contest description shall be false, misleading or deceptive with respect to any material term. For the purposes of this rule:

(a) A contest is a scheme in which a prize is offered or awarded, based upon chance, diligence, knowledge or skill, to members of the public.

(b) Material terms include those factors which define the operation of the contest and which affect participation therein. Although the material terms may vary widely depending upon the exact nature of the contest, they will generally include: how to enter or participate; eligibility restrictions; entry deadline dates; whether prizes can be won; when prizes can be won; the extent nature and value of prizes; basis for valuation of prizes; time and means of selection of winners; and tie-breaking procedures.

In general, the time and manner of disclosure of the material terms of a contest are within the li-

licensee's discretion. However, the obligation to disclose the material terms arises at the time the audience is first told how to enter or participate and continues thereafter. The material terms should be disclosed periodically by announcements broadcast on the station conducting the contest, but need not be enumerated each time an announcement promoting the contest is broadcast. Disclosure of material terms in a reasonable number of announcements is sufficient. In addition to the required broadcast announcements, disclosure of the material terms may be made in a non-broadcast manner.

**NORM.**—This rule is not applicable to licensee-conducted contests not broadcast or advertised to the general public or to a substantial segment thereof, to contests in which the general public is not requested or permitted to participate, to the commercial advertisement of non-licensee-conducted contests, or to a contest conducted by a non-broadcast division of the licensee or by a non-broadcast company related to the licensee.

**§ 73.1225 Station inspections by FCC.**

(a) The licensee of a broadcast station shall make the station available for inspection by representatives of the FCC during the station's business hours, or at any time it is in operation.

(b) In the course of an inspection or investigation, an FCC representative may require special equipment tests, program tests or operation with nighttime or presunrise facilities during daytime hours pursuant to 0.314, Part 1, of the FCC rules.

(c) The following records shall be made available upon request by representatives of the FCC. (1) *For commercial and noncommercial AM stations:*

(i) Equipment performance measurements required by § 73.47.

(ii) Copy of the most recent antenna resistance or common-point impedance measurements submitted to the FCC.

(iii) Copy of the most recent field strength measurements made to establish performance of directional antennas required by § 73.151.

(iv) Copy of the partial and skeleton directional antenna proofs of performance as directed by § 73.154 and made pursuant to the following requirements:

(A) Section 73.67, Remote control operation.  
 (B) Section 73.68, Sampling systems for antenna monitors.

(C) Section 73.69, Antenna monitors.

(D) Section 73.93, Operator requirements.

(v) Chief operator agreements and contracts with first-class operators employed part-time for maintenance duties.

(2) *For commercial and noncommercial FM stations.*

(i) Equipment performance measurements required by § 73.254 and § 73.554.

(ii) Chief operator agreements and contracts with first-class operators employed part-time for maintenance duties.

(d) The following logs shall be made available upon request by representatives of the FCC:

(1) *For commercial AM and FM stations:*

(1) Operating and maintenance logs.

(2) *For noncommercial educational AM and FM stations:*

(1) Program, operating and maintenance logs.

(3) *For commercial and noncommercial educational TV stations:*

(1) Program, operating and maintenance logs.

**§ 73.1225 (c) revised, (d) added eff. 4-8-81; III (80)-1**

**§ 73.1226 Availability to FCC of station logs and records.**

The following shall be made available to any authorized representative of the FCC upon request:

(a) Station records and logs shall be made available for inspection or duplication at the request of the FCC or its representative. Such logs or records may be removed from the licensee's possession by an FCC representative or, upon request, shall be mailed by the licensee to the FCC by either registered mail, return receipt requested, or certified mail, return receipt requested. The return receipt shall be retained by the licensee as part of the station records until such records or logs are returned to the licensee. A receipt shall be furnished when the logs or records are removed from the licensee's possession by an FCC representative and this receipt shall be retained by the licensee as part of the station records until such records or logs are returned to the licensee. When the FCC has no further need for such records or logs, they shall be returned to the licensee. The provisions of this rule shall apply solely to those station logs and records which are required to be maintained by the provisions of this Chapter.

(1) Logs and records stored on microfilm, microfiche or other data-storage systems are subject to the requirements pertaining thereto found in § 73.1840(b).

(b) Where records or logs are maintained as the official records of a recognized law enforcement agency and the removal of the records from the possession of the law enforcement agency will hinder its law enforcement activities, such records will not be removed pursuant to this Section if the chief of the law enforcement agency promptly certifies in writing to the FCC that removal of the logs or records will hinder law enforcement activities of the agency, stating insofar as feasible the basis for his decision and the date when it can reasonably be expected that such records will be released to the FCC.

(c) The following contracts, agreements, or understandings, which need not be filed with the FCC (per § 1.613, Filing of contracts), shall be kept at the station and made available for inspection by any authorized representative of the FCC upon request: contracts relating to the sale of broadcast time to "time brokers" for resale; subchannel leasing agreements for Subsidiary Communications Authorization operation; time sales contracts with the same sponsor for 4 or more hours per day, except where the length of the events (such as athletic contests, musical programs, and special events) broadcast pursuant to the contract is not under control of the station; and contracts with chief operators and other engineering personnel.

【§ 73.1226(a)(1) added eff. 6-16-80; III(80)-1】

#### § 73.1230 Posting of station and operator licenses.

(a) The station license and any other instrument of station authorization shall be posted in a conspicuous place and in such manner that all terms are visible at the place the licensee considers to be the principal control point of the transmitter. At all other control or ATS monitoring and alarm points a photocopy of the station license and other authorizations shall be posted.

(b) The operator license or Form 759 (Verification of Operator License or Permit) of each station operator employed full-time or part-time or via contract, shall be permanently posted and shall remain posted so long as the operator is employed by the licensee. The operator license shall be posted where the operator is on duty, either:

- (1) at the transmitter; or
- (2) at the extension meter location; or
- (3) at the remote control point, if the station is operated by remote control; or
- (4) at the monitoring and alarm point, if the station is using an automatic transmission system.

(c) Posting of the operator licenses and the station license and any other instruments of authorization shall be done by affixing the licenses to the wall at the posting location, or by enclosing them in a binder or folder which is retained at the posting location so that the documents will be readily available and easily accessible.

#### § 73.1250 Broadcasting emergency information.

(a) Emergency situations in which the broadcasting of information is considered as furthering the safety of life and property include, but are not limited to the following: tornadoes, hurricanes, floods, tidal waves, earthquakes, icing conditions, heavy snows, widespread fires, discharge of toxic gasses, widespread power failures, industrial explosions, civil disorders and school closings and changes in school bus schedules resulting from such conditions.

(b) If requested by responsible public officials, a station may, at its discretion, and without further FCC authority, transmit emergency point-to-point messages for the purpose of requesting or dispatching aid and assisting in rescue operations.

(c) If the Emergency Broadcast System (EBS) is activated for a National Level emergency while a local or state level emergency operation is in progress, the National Level EBS operation shall take precedence. If, during the broadcasting of local or state emergency information, the attention signal described in § 73.906 is used, the broadcasts are considered as being carried out under a State Level or Local Level EBS Operational Plan.

(d) Any emergency operation undertaken in accordance with this Section may be terminated by the FCC if required in the public interest.

(e) Immediately upon cessation of an emergency during which broadcast facilities were used for the transmission of point-to-point messages under paragraph (b) of this Section, or when daytime facilities were used during nighttime hours by an AM station in accordance with paragraph (f) of this Section, a report in letter form shall be forwarded to the FCC in Washington, D.C., setting forth the nature of the emergency, the dates and hours of the broadcasting of emergency information, and a brief description of the material carried during the emergency. A certification of compliance with the noncommercialization provision of paragraph (f) of this Section must accompany the report where daytime facilities are used during night-

time hours by an AM station, together with a detailed showing, under the provisions of that paragraph, that no other broadcast service existed or was adequate.

(f) AM stations may, without further FCC authority, use their full daytime facilities during nighttime hours to broadcast emergency information (examples listed in paragraph (a) of this Section), when necessary to the safety of life and property, in dangerous conditions of a general nature and when adequate advance warning cannot be given with the facilities authorized. Because of skywave interference impact on other stations assigned to the same channel, such operation may be undertaken only if regular, unlimited-time service is non-existent, inadequate from the standpoint of coverage, or not serving the public need. All operation under this paragraph must be conducted on a non-commercial basis. Recorded music may be used to the extent necessary to provide program continuity.

(g) Broadcasting of emergency information shall be confined to the hours, frequencies, powers and modes of operation specified in the station license, except as otherwise provided for AM stations in paragraph (f) of this Section.

(h) Any emergency information transmitted by a TV station in accordance with this Section shall be transmitted both aurally and visually or only visually. TV stations may use any method of visual presentation which results in a legible message conveying the essential emergency information. Methods which may be used include, but are not necessarily limited to, slides, electronic captioning, manual methods (e.g., hand printing) or mechanical printing processes. However, when emergency operation is being conducted under a National, State or Local Level Emergency Broadcast System (EBS) Plan, emergency information shall be transmitted both aurally and visually.

#### § 73.1510 Experimental authorizations.

(a) Licensees of broadcast stations may obtain experimental authorizations to conduct technical experimentation directed toward improvement of the technical phases of operation and service, and for such purposes may use a signal other than the normal broadcast program signal.

(b) Experimental authorizations may be requested by filing an informal application with the FCC in Washington, D.C., describing the nature and purpose of the experimentation to be conducted, the nature of the ex-

perimental signal to be transmitted, and the proposed schedule of hours and duration of the experimentation. Experimental authorizations shall be posted with the station license.

(c) Experimental operations are subject to the following conditions:

(1) The authorized power of the station may not be exceeded, except as specifically authorized for the experimental operations.

(2) Emissions outside the authorized bandwidth must be attenuated to the degree required for the particular type of station.

(3) The experimental operations may be conducted at any time the station is authorized to operate, but the minimum required schedule of programming for the class and type of station must be met. AM stations also may conduct experimental operations during the experimental period (12 midnight local time to local sunrise) and at additional hours if permitted by the experimental authorization provided no interference is caused to other stations maintaining a regular operating schedule within such period(s).

(4) If an experimental authorization permits the use of additional facilities or hours of operation for experimental purposes, no sponsored programs or commercial announcements may be transmitted during such experimentation.

(5) The licensee may transmit regularly scheduled programming concurrently with the experimental transmissions if there is no significant impairment of service.

(6) No charges may be made, either directly or indirectly, for the experimentation; however, normal charges may be made for regularly scheduled programming transmitted concurrently with the experimental transmissions.

(d) The FCC may request a report of the research, experimentation and results at the conclusion of the experimental operation.

#### § 73.1515 Special field test authorization.

(a) A special field test authorization may be issued to conduct field strength surveys to aid in the selection of suitable sites for broadcast transmission facilities, determine coverage areas, or to study other factors influencing broadcast signal propagation. The applicant for the authorization must be qualified to hold a license under Section 303(1)(1) of the Communications Act.



(b) Requests for authorizations to operate a transmitter under a Special field test authorization must be in writing using an informal application in letter form, signed by the applicant and including the following information:

- (1) Purpose, duration and need for the survey.
- (2) Frequency, transmitter output powers and time of operation.
- (3) A brief description of the test antenna system, its estimated effective radiated field and height above ground or average terrain, and the geographic coordinates of its proposed location(s).

(c) Operation under a special field test authorization is subject to the following conditions:

(1) No objectionable interference will result to the operation of other authorized radio services; in this connection, the power requested shall not exceed that necessary for the purposes of the test.

(2) The carriers will be unmodulated except for the transmission of a test-pattern on a visual TV transmitter, and for hourly voice station identification on aural AM, FM and TV transmitters.

(3) The transmitter output power or antenna input power may not exceed those specified in the test authorization and the operating power must be maintained at a constant value for each phase of the tests.

(4) The input power to the final amplifier stage, and the AM antenna current or the FM or TV transmitter output power must be logged at half-hour intervals and at any time that the power is adjusted or changed. Copies of the station logs must be submitted to the FCC with the required report.

(5) The test equipment may not be permanently installed, unless such installation has been separately authorized. Mobile units are not deemed permanent installations.

(6) AM and FM test transmitters must be operated by or under the personal direction of an operator holding a First Class or Second-Class Radiotelephone Operator Certificate. TV test transmitters must be operated by or under the personal direction of an operator holding a First-Class Operator Certificate.

(7) A report, containing the measurements, their analysis and other results of the survey shall be filed with the FCC in Washington, D.C., within sixty (60) days following the termination of the test authorization.

(8) The test transmission equipment, installation and operation thereof need not comply with the requirements of FCC rules and standards except as specified in this Section if the equipment, installation and operation are consistent with good engineering principles and practices.

(d) A special field test authorization may be modified or terminated by notification from the FCC if in its judgment such action will promote the public interest, convenience and necessity.

#### § 73.1520 Operation for tests and maintenance.

(a) Broadcast stations may be operated for tests and maintenance of their transmitting systems on their assigned frequencies using their licensed operating power and antennas during their authorized hours of operation without specific authorization from the FCC.

(b) Licensees of AM stations may operate for tests and maintenance during the hours from 12 midnight local time to local sunrise, if no interference is caused to other stations maintaining a regular operating schedule within such period. No AM stations licensed for "daytime" or "specified hours" of operation may broadcast any regular or scheduled programs during this period of test and maintenance operation.

(c) Licensees of AM stations may obtain special antenna test authorizations, and operate under the provisions described in § 73.157, to operate with nighttime facilities during daytime hours in conducting directional antenna field strength and antenna proof of performance measurements.

#### § 73.1530 Portable test stations. (Definition)

A portable test station is one that is moved from place to place for making field strength and ground conductivity measurements, for selecting station transmitter sites, and conducting other specialized propagation tests. Portable test stations are not normally used while in motion, and may not be used for the transmission of programs intended to be received by the public.

#### § 73.1540 Carrier frequency measurements.

(a) The carrier frequency of each AM and FM station and the visual carrier frequency and difference between the visual carrier and the aural carrier or center frequency of each TV station shall be measured or determined as often as necessary to insure that they are maintained within the prescribed tolerances. However, in any event, each station with an authorized operating power greater than 10 watts shall make at least one measurement or determination each calendar month with intervals not exceeding 40 days between successive measurements for each main transmitter in use.

(b) The licensee of each broadcast station shall determine the method or procedures for measuring or determining the carrier frequency.

(c) The primary standard of frequency for radio frequency measurements is the standard frequency maintained by the National Bureau of Standards or the standard signals of Stations WWV, WWVB, and WWVH of the National Bureau of Standards.

#### § 73.1545 Carrier frequency departure tolerances.

(a) *AM stations.* The departure of the carrier frequency of an AM station may not exceed  $\pm 20$  hertz from the assigned frequency.

(b) *FM stations.* (1) The departure of the carrier or center frequency of an FM station with an authorized transmitter output power more than 10 watts may not exceed 2000 hertz from the assigned frequency.

(2) The departure of the carrier or center frequency of an FM station with an authorized transmitter output power of 10 watts or less may not exceed  $\pm 3000$  hertz from the assigned frequency.

(c) *TV stations.* (1) The departure of the visual carrier frequency of a TV station may not exceed  $\pm 1000$  hertz from the assigned visual carrier frequency.

(2) The departure of the aural carrier frequency of a TV station may not exceed  $\pm 1000$  hertz from the actual visual carrier frequency plus exactly 4.5 MHz.

(d) *International broadcast stations.* The departure of the carrier frequency of an International broadcast station may not exceed 0.0015% of the assigned frequency on which the station is transmitting.

§ 73.1550 Extension meters.

(a) A broadcast station may, without further authority from the FCC, install and use extension meters and monitoring devices provided:

(1) The transmitter is in the same building as the normal operating location of the station's licensed operator and is no more than one floor above or below the normal operating location.

(2) The path from the normal operating location to the transmitter is no longer than 100 feet and provides the operator with ready access to the transmitter.

(3) The required extension meters and monitoring devices are sufficiently close to the operator's normal operating location that deviations from normal indications of such instruments can be observed from that location.

(4) The transmitter is installed and protected so it is not accessible to unauthorized persons.

(5) Each extension meter or monitoring device required for the type of station, pursuant to paragraph (b), shall continuously sample the parameter for which it is installed and constantly indicate that parameter.

(6) Installation and operation of these meters shall be in accordance with the requirements prescribed for their corresponding regular meters and monitoring devices.

(7) Devices used for obtaining extension meter indications do not affect the accuracy of their corresponding regular meters.

(b) Extension metering and monitoring devices shall be installed as follows:

(1) *AM stations:*

(i) Meters for indicating the DC input power of the last radio frequency power amplifier stage of the transmitter.

(ii) A meter for indicating non-directional antenna current or directional antenna common point current.

(iii) The modulation monitor or a percentage modulation meter and peak indicating device which provides continuous and accurate indications of the modulation levels.

(Ed. 3/80)

(iv) For stations using directional antenna systems, either the antenna monitor or external meters meeting the specifications for accuracy and repeatability prescribed for the monitor itself.

(2) *FM stations operating with transmitter output power more than 10 watts:*

(i) Meters for indicating the DC input power to the last radio frequency amplifier stage of the transmitter.

(ii) A meter for indicating the relative transmission line voltage, current or power.

(iii) The modulation monitor or a percentage modulation meter and peak indicating device which provide continuous and accurate indications of total modulation levels.

(3) *FM stations operating with transmitter power of 10 watts or less:*

(i) An indicator to show when the transmitter is in operation.

(ii) A percentage modulation indicator or a calibrated program level meter from which a satisfactory indication of the percentage of modulation can be determined.

(4) *TV stations.*

(i) Meters for indicating the DC input power to the last radio frequency power amplifier stages for the aural and visual transmitters.

(ii) Meters for indicating the relative transmission line voltage, current or power for the aural and visual transmitters.

(iii) The aural modulation monitor or a percentage modulation meter and peak indicating device which provide continuous and accurate indications of modulation levels.

(iv) Visual monitoring equipment suitable for monitoring the visual signal so that it may be maintained in accordance with the FCC requirements.

(c) The extension meters required, pursuant to paragraph (b) of this Section, must be calibrated against their corresponding regular meters as often as necessary to insure their accuracy, but in no event less than once each week, and

(1) The results of such calibration shall be entered in the station's maintenance log.

(2) In no event shall an extension meter be calibrated against another remote or extension meter.

(3) Each extension meter shall be accurate to within 2 percent of the value read on its corresponding regular meter.

(4) For AM stations, such calibrations shall be made for each mode of operation.

(d) If a malfunction of any component of the extension metering or monitoring system causes inaccurate readings, the following procedures shall apply:

(1) *All stations.* If the malfunction affects the meters for indicating the DC input power to the last radio stage of the transmitter power amplifier, the indications must be read at the transmitter and entered in the operating log at the same intervals. If

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(ii) AM stations transmitting telemetry signals for remote control or automatic transmission system operation must meet the modulation limitations of §73.67(b) or §73.142(j).

(2) FM STATIONS. In no case shall the total modulation exceed 100% on peaks of frequent recurrence. (Added 79-609, 10/22/79)

(i) FM stations transmitting stereophonic programs must meet the stereophonic signal modulation specifications of paragraphs (b), and (i) of § 73.322. (Added 79-609, 10/22/79)

(ii) FM stations transmitting multiplex signals for SCA or telemetry purposes must meet the multiplex signal modulation specifications of § 73.319(c). (Added 79-609, 10/22/79)

(3) TV STATIONS. In no case shall the total modulation of the aural carrier exceed 100% on peaks of frequent recurrence, unless some other peak modulation level is specified in an instrument of authorization. (Added 79-609, 10/22/79)

(i) [RESERVED] [79-609, 10/22/79]

(ii) TV stations transmitting multiplex signals on the aural carrier for telemetry, or Subscription Television Service, must limit the modulation of the main carrier by the arithmetic sum of the subcarriers to not more than 10%, unless some other subcarrier modulation level is specified in the instrument of authorization. (Added 79-609, 10/22/79)

(c) If limiting or compression amplifier is employed to maintain modulation levels, precaution must be taken so as not to substantially alter the dynamic characteristics of programs. (Added 79-609, 10/22/79)

## 73.1580 TRANSMISSION SYSTEM INSPECTIONS.

(a) Every AM, FM, and TV station must conduct a complete inspection of the transmitting system and all required monitors according to the following schedule: (Added 81-266, 8/7/81)

(1) For stations not using an automatic transmission system, an inspection at least once each calendar week at intervals not exceeding 10 days. (Added 81-266, 8/7/81)

(2) For stations using an authorized automatic transmission system (ATS) the inspections must be completed at least once each calendar month at intervals not exceeding 40 days. (Added 81-266, 8/7/81)

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- (3) For Class D noncommercial educational FM stations authorized to operate with power not exceeding 10 watts, the inspections must be conducted as necessary to insure compliance with the rules and terms of the station authorization. (Added 81-266, 8/7/81)

(b) The results of the inspections required by subsection (a) of this section are to be entered in the station maintenance log as specified in § 73.1830(a)(1)(ix). (Added 81-266, 8/7/81)

73.1590 EQUIPMENT PERFORMANCE MEASUREMENTS.

(a) The licensee of each AM, FM and TV station, except licensees of Class D non-commercial educational FM stations authorized to operate with 10 watts or less output power, must make equipment performance measurements for each main transmitter as follows:

- (1) Upon initial installation of a main new or replacement transmitter.
- (2) Upon modification of an existing transmitter made under the provisions of § 73.1690, Modification of Transmission Systems, and specified therein.
- (3) Installation of AM stereophonic transmission equipment pursuant to § 73.170.
- (4) Installation of FM stereophonic transmission equipment pursuant to §§ 73.297 or 73.597.
- (5) When required by other provisions of the rules or the station license.
- (6) AM and FM stations (except 10 watt non-commercial educational stations), once each calendar year. (One set of measurements must be made during the 4 month period immediately preceding the filing date of the application for renewal of the station license. Successive measurements are to be made at least annually by the anniversary calendar month, and completed within an additional 2 months, with no more than 14 months between measurements.)

(b) AUDIO MEASUREMENTS.

Audio equipment performance measurements must be made with the equipment adjusted for normal program operation and must include the circuits between the main studio microphone terminals or amplifier input and the antenna circuit, including any correcting equalizer circuits normally used. Any dynamic audio processing or non-correcting equalizers must be disabled or neutralized. The measurements must yield the following information.

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## (1) AM MONOPHONIC STATIONS.

- (i) Data and curves showing overall audio frequency response from 50 to 7,500 Hz for approximately 25, 50, 85 and if obtainable, 100% modulation. A family of curves must be plotted (one for each percentage above) with dB above and below the 1000 Hz reference frequency as ordinate and audio frequency as abscissa.
- (ii) Data and curves showing audio frequency harmonic content for 25, 50, 85 and, if obtainable, 100% modulation for the audio frequencies of 50, 100, 400, 1000, 5000, and 7500 Hz (either arithmetical or RRS (root sum square) values up to the 10th harmonic or 16,000 Hz). A family of curves must be plotted (one for each percentage above) with percent distortion as ordinate and audio frequency as abscissa.
- (iii) Data showing percentage of carrier amplitude regulation (carrier shift) for 25, 50, 85 and, if obtainable, 100% modulation with 400 Hz tone.
- (iv) The carrier hum and extraneous noise level generated within the equipment, and measured throughout the audio spectrum, or bands, in dB below the reference level of 100% modulation by a 400 Hz tone.
- (v) Measurements or evidence showing that spurious radiations, including radio frequency harmonics, are suppressed or are not present to a degree capable of causing objectionable interference to other radio services. Field strength measurements are preferred but observations made with a communications type receiver are acceptable. However, in particular cases involving interference or controversy, the FCC may require field strength measurements.



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(2) AM STEREOPHONIC STATIONS.

- (i) Data and curves showing the overall audio frequency response from 50 to 15,000 Hz for approximately 25%, 50%, 75%, and 100% modulation with equal left and right (L + R) main channel signal; 25%, 50%, and 75% modulation with both a left (L) channel only and right (R) channel only signals.
- (ii) Data and curves showing audio frequency harmonic content for 25%, 50%, 75%, and (main channel only) 100% modulation for the audio frequencies 50, 100, 400, 1000, 5000, and when attainable 7,500, 10,000, 12,500, and 15,000 Hz (either arithmetical or RSS (root sum square) values up to the 10th harmonic or 30,000 Hz) for equal left and right (L = R), left (L) only and right (R) only signals. A family of curves must be plotted as specified in paragraph (b)(1)(ii) above.
- (iii) Data showing percentage of carrier amplitude regulation as specified in paragraph (b)(1)(iii) above for main channel modulation with equal left and right (L = R) signals.
- (iv) The carrier hum and extraneous noise level generated within the equipment, and measured throughout the audio spectrum, or band, in dB below the reference level of 100% amplitude modulation by a 400 Hz tone for the main, left, and right channels.
- (v) Measurements or observations for spurious and harmonic radiations as specified in paragraph (b)(1)(v) above while modulating the transmitter main (L + R) channel only, left (L) channel only, right (R) channel only and stereophonic channel only (L - R) signal. The tests shall be made with the tones and maximum attainable normal modulation as specified in 73.128(b).
- (vi) The degree of incidental phase modulation of the carrier wave, in radians, when the main (L + R) channel is amplitude modulated without pilot tone. The tests shall be made with the tones and maximum attainable modulation levels as specified in (2)(i) of this paragraph.
- (vii) The main to stereophonic channel and the stereophonic to main channel crosstalk. The tests shall be made with the tones and maximum attainable normal modulation as specified in (2)(i) of this paragraph.



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(viii) In the above measurements, if 100% negative peak modulation is not attainable, the highest attainable modulation percentage between 95% and 100% modulation shall be used.

## (3) FM AND TV (AURAL).

- (i) Audio frequency response from 50 to 15,000 Hz for approximately 25, 50 and 100% modulation. Measurements must be made using at least 50, 100, 400, 1,000, 5,000, 10,000 and 15,000 Hz tones. The frequency response measurements made without deemphasis may be used in the measuring equipment provided the accuracy of the deemphasis circuit is sufficient to insure that the measure response is within the prescribed limits.
- (ii) Audio frequency harmonic distortion for 25, 50, 100% modulation for the audio frequencies of 50, 100, 400, 1000, and 5000 Hz and audio frequency harmonics for 100% modulation for audio frequencies of 10,000 and 15,000 Hz. Measurements must normally include harmonics to 30,000 Hz. The distortion measurements must be made with 75 microsecond deemphasis in the measuring equipment.
- (iii) Output noise level (frequency modulation) in the band of 50 to 15,000 Hz in dB below the reference level of 100% modulation by a 400 Hz tone. The noise measurement must be made using 75 microsecond deemphasis in the measuring equipment.
- (iv) Output noise level (amplitude modulation) in the band of 50 to 15,000 Hz in dB below the reference of 100% modulation by a 400 Hz tone. The noise measurement must be made using 75 microsecond deemphasis in the measuring equipment.
- (v) If, after type acceptance, any changes have been made in the transmitter or associated equipment (filters, multiplexers, etc.) which could cause changes in its radiation product, data showing attenuation of spurious and harmonic radiation.

## (c) TV VISUAL.

TV visual equipment performance measurements must be made with the equipment adjusted for normal program operation. When practical, the measurements should be made through the video transmission system from the studio program terminal to the transmitting antenna sampling port. The measurements must yield the following information:



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- (5) No log need be made available for public inspection until 45 days have elapsed from the day covered by the log in question. (Added 78-681, 10/16/78)
- (6) In cases where the logging system used does not provide for a written program log, the licensee shall retain, subject to the above provisions, either copies of the station's pre-logs (operating schedules), which have been updated and certified correct, or recordation produced by an automatic maintenance of logging data device (i. e., tapes or encoded printouts). See § 73.1810 (Program logs). (Added 78-681, 10/16/78)
- (7) Logs stored on microfilm, microfiche or other data-storage systems are subject to the requirements pertaining thereto found in §73.1840(b). (Added 80-315, 6/16/80)

## 73.1860 TRANSMITTER DUTY OPERATORS.

(a) Each AM, FM, and TV broadcast station must have at least one person holding a commercial radio operator license or permit of any class except a Marine Radio Operator Permit on duty in charge of the transmitter during all periods of broadcast operation. The operator must be on duty at the transmitter location, a remote control point, an ATS monitor and alarm point, or a position where extension meters are installed under the provisions of §73.1550.

(b) The transmitter operator must be able to observe the required transmitter and monitor metering to determine deviations from normal indications. The operator must also be able to make the necessary adjustments from the normal operator duty position, except as provided for in §73.1550.

(c) It is the responsibility of the station licensee to ensure that each transmitter operator is fully instructed and capable to perform all necessary observations and adjustments of the transmitting system and other associated operating duties to ensure compliance with the rules and station authorization.

(d) The transmitter duty operator may, at the discretion of the station licensee and chief operator, be employed for other duties or operation of other transmitting stations if such other duties will not interfere with the proper operation of the broadcast transmission system.



FEDERAL COMMUNICATIONS COMMISSION RULES - PART 73

73.1870 CHIEF OPERATORS.

(a) The licensee of each AM, FM, and TV broadcast station must designate a person holding a commercial radio operator license of any class other than a Marine Radio Operator Permit to serve as the station's chief operator. At times when the chief operator is unavailable or unable to act (e.g., vacations, sickness), the licensee shall designate another licensed operator as the acting chief operator on a temporary basis. (Added 81-266, 8/7/81)

(b) Chief operators shall be employed or serve on the following basis: (Added 81-266, 8/7/81)

- (1) The chief operator for an AM station using a directional antenna or operating with greater than 10 kW authorized power, or of a TV station is to be an employee of the station on duty for whatever number of hours each week the station licensee determines is necessary to keep the station's technical operation in compliance with FCC rules and the terms of the station authorization. (Added 81-266, 8/7/81)
- (2) Chief operators for non-directional AM stations operating with authorized powers not exceeding 10 kW and FM stations may be either an employee of the station or engaged to serve on a contract basis for whatever number of hours each week the licensee determines is necessary to keep the station's technical operation in compliance with the FCC rules and terms of the station authorization. (Added 81-266, 8/7/81)
- (3) The designation of the chief operator must be in writing with a copy of the designation posted with the operator license. Agreements with chief operators serving in a contract basis must be in writing with a copy kept in the station files. (Added 81-266, 8/7/81)

*EDITOR'S NOTE: Section 73.1870(c) has been so completely revised by Amendment No. 82-304, that no attempt has been made to show the previous wording.*

(c) The chief operator is responsible for the completion of the duties specified in this paragraph below. When these duties are delegated to other persons, the chief operator shall maintain supervisory oversight sufficient to know that each requirement has been fulfilled in a timely and correct manner.

- (1) Weekly (or monthly for stations using automatic transmission systems) inspections and calibrations of the transmission system, required monitors, metering, and control systems; and any necessary repairs or adjustments where indicated. (See §73.1580.)



## FEDERAL COMMUNICATIONS COMMISSION RULES - PART 73

- (2) Periodic AM field monitoring point measurements, equipment performance measurements, or other tests as specified in the rules or terms of the station license.
- (3) Review of the station operating logs at least once each week as part of the transmission system inspections to determine if the entries are being made correctly or if the station has been operating as required by the rules or the station authorization. Upon completion of the review, the chief operator or his designee is to make a notation of any discrepancies observed and date and sign the log; initiate necessary corrective action, and advise the station licensee of any condition which is a repetitive problem.
- (4) Entries in the maintenance log. (See §73.1830.)

## 73.1910 FAIRNESS DOCTRINE.

The Fairness Doctrine is contained in the section 315(a) of the Communications Act of 1934, as amended, which provides that broadcasters have certain obligations to afford reasonable opportunity for the discussion of conflicting views on issues of public importance. See FCC public notice "Fairness Doctrine and the Public Interest Standards," 39 FR 26372. Copies may be obtained from the FCC upon request. (Added 78-681, 10/16/78)

## 73.1920 PERSONAL ATTACKS.

(1) When, during the presentation of views on a controversial issue of public importance, an attack is made upon the honesty, character, integrity or like personal qualities of an identified person or group, the licensee shall, within a reasonable time and in no event later than one week after the attack, transmit to the persons or group attacked: (Added 78-681, 10/16/78)

- (1) Notification of the date, time and identification of the broadcast; (Added 78-681, 10/16/78)
- (2) A script or tape (or an accurate summary if a script or tape is not available) of the attack; and (Added 78-681, 10/16/78)



tion affects the extended indications of the modulation monitor (aural) the licensee shall, pending repair or replacement, provide other suitable means for monitoring modulation at the extended meter location.

(2) *AM stations.* In addition to (1) above, if the malfunction affects the extension indications of antenna or common point ammeter, the operating power may be determined by the indirect method using the procedures described in § 73.51(e) for a period not to exceed 60 days. Alternatively, the operating power may be determined by the direct method on a continued basis by reading the regular antenna or common point ammeter with indications entered in the operating log once each day for each mode of operation until the defective extension metering is repaired. If the malfunction affects the extended indications of the directional antenna monitor, the pertinent entries required in the operating log must be obtained at the specified intervals at the monitor location.

(3) *FM stations.* In addition to (1) above, if the malfunction affects the transmission line meter, the indications must be read at the transmitter and entered in the operating log at the same intervals.

(4) *TV stations.* In addition to (1) above, if the malfunction affects the transmission line meter(s), indications must be read at the transmitter and entered in the operating log at the same intervals. If the malfunction affects the indications of the visual monitoring equipment, the licensee shall, pending repair or replacement, provide other suitable means for monitoring the visual modulation at the extension meter location.

(e) When a malfunction in the extension metering or monitoring equipment is detected, an appropriate entry shall be made in the station's maintenance log showing the date of the observance and identifying the indicating device(s) affected. A dated entry shall also be made when repair or replacement is completed. If a malfunctioning component cannot be repaired or replaced within 60 days from the date faulty operation is detected, the Engineer in Charge of the radio district in which the station is located shall be notified and request made for such additional time as is needed to complete the necessary repairs or replacement.

#### § 73.1560 Operating power tolerance.

(a) *AM stations.* Except as provided for in paragraph (d), the antenna input power of an AM station as determined by the procedures specified in § 73.51 must be maintained as near as is practicable to the authorized antenna input power and may not be less than 90% nor more than 105% of the authorized power.

(b) *FM stations.* Except as provided in paragraph (d), the transmitter output power of an FM station

with power output as determined by the procedures specified in § 73.267 (§ 73.567 for noncommercial educational FM stations) authorized for output power more than 10 watts must be maintained as near as practicable to the authorized transmitter output power and may not be less than 90% nor more than 105% of the authorized power. FM stations operating with authorized transmitter output power of 10 watts or less, may operate at less than the authorized power, but not more than 105% of the authorized power.

(c) *TV stations.* Except as provided in paragraph (d), the aural and visual transmitter output power of a TV station, as determined by the procedures specified in § 73.663 must be maintained as near as is practicable to the authorized transmitter output power and may not be less than 80% nor more than 110% of the authorized powers. The FCC may specify deviation from the power tolerance requirements for subscription television operations to the extent it deems necessary to permit proper operation.

(d) *Reduced power operation.* In the event it becomes technically impossible to operate with the authorized power, a broadcast station may operate at reduced power for a period of not more than 30 days without specific authority from the FCC. If operation at reduced power will exceed 10 consecutive days, a notification must be sent to the FCC in Washington, D.C., not later than the 10th day of the lower power operation. In the event the normal power is restored prior to the expiration of the 30-day period, the licensee must notify the FCC upon restoration of normal operation. If causes beyond the control of the licensee prevent restoration of authorized power within 30 days, an informal written request must be made to the FCC in Washington, D.C., no later than the 30th day for the additional time as may be necessary.

#### § 73.1570 Modulation levels: AM, FM, and TV aural.

(a) The percentage of modulation is to be maintained at as high a level as is consistent with good quality of transmission and good broadcast service, with maximum levels not to exceed the values specified in paragraph (b). Generally, the modulation should not be less than 85% on peaks of frequent recurrence, but where lower modulation levels may be required to avoid objectionable loudness or to maintain the dynamic range of the program material, the degree of modulation may be reduced to whatever level is necessary for this purpose, even though under such circumstances the level may be substantially less than that which produces peaks of frequent recurrence at a level of 85%.

(b) Maximum modulation levels must meet the following limitations:

(1) *AM stations.* In no case shall the modulation exceed 100% on negative peaks of frequent recurrence, or 125% on positive peaks at any time.

(2) *FM stations.* In no case shall the total modulation exceed 100% on peaks of frequent recurrence.

(i) FM stations transmitting stereophonic programs must meet the stereophonic signal modulation specifications of paragraphs (b) and (i) of § 73.322.

(ii) FM stations transmitting multiplex signals for SCA or telemetry purposes must meet the multiplex signal modulation specifications of § 73.319(c).

(3) *TV stations.* In no case shall the total modulation of the aural carrier exceed 100% on peaks of frequent recurrence, unless some other peak modulation level is specified in an instrument of authorization.

(i) [Reserved]

(ii) TV stations transmitting multiplex signals on the aural carrier for telemetry, or Subscription Television Service, must limit the modulation of the main carrier by the arithmetic sum of the subcarriers to not more than 10%, unless some other subcarrier modulation level is specified in the instrument of authorization.

(c) If a limiting or compression amplifier is employed to maintain modulation levels, precaution must be taken so as not to substantially alter the dynamic characteristics of programs.

#### § 73.1610 Equipment tests.

(a) During the process of construction of a broadcast station, the permittee, after notifying the FCC in Washington, D.C. and Engineer in Charge of the radio district in which the station is located may, without further authority of the Commission, conduct equipment tests for the purpose of such adjustments and measurements as may be necessary to assure compliance with the term of the construction permit, the technical provisions of the application therefor, the rules and regulations and the applicable engineering standards. For AM stations, tests must be conducted during the experimental period, 12 midnight local time to local sunrise. The FCC may authorize equipment tests other than during the experimental period for AM stations, if such operation is shown to be desirable to the proper completion of construction and adjustment of the transmitting equipment and antenna system. An informal application for such authority, giving full details regarding the need for such tests, shall be filed with the FCC in Washington, D.C. at least 2 days (not including Saturdays, Sundays and legal holidays when the offices of the FCC are not open) prior to the date on which it is desired to begin such operation.

(b) The FCC may notify the permittee not to conduct tests or may cancel, suspend or change the date for the beginning of equipment tests if and when such action may appear to be in the public interest, convenience and necessity.

(c) Equipment tests may be continued so long as the construction permit shall remain valid.

(d) Inspection of a station will ordinarily be required during the equipment test period and before the commencement of program tests. After construction and after adjustments and measurements have been completed to show compliance with the terms of the construction permit, the technical provisions of the application therefor, and the rules and regulations, the permittee shall notify the Engineer in Charge of the radio district in which the station is located that it is ready for inspection.

(e) The authorization for tests embodied in this section shall not be construed as constituting a license to operate but as a necessary part of construction.

#### § 73.1615 Operation during modification of facilities.

When the licensee of an existing AM, FM or TV station is in the process of modifying existing facilities as authorized by a construction permit and determines it is necessary to either discontinue operation or to operate with temporary facilities to continue program service, the following procedures apply:

(a) Licensees holding a construction permit for modified operation of nondirectional facilities may, without specific FCC authority, for a period not exceeding 30 days:

(1) Discontinue operation, or

(2) Operate with temporary facilities to maintain, as nearly as possible, but not exceed, the size of the presently licensed coverage area, and

(3) In either procedure, such operation or discontinuance of operation may begin upon notification to the FCC in Washington, D.C. and the Engineer in Charge of the radio district in which the station is located.

(4) Should it be necessary to continue the procedure in either paragraph (a) (1) or (a) (2) of this section, an informal letter request signed by the licensee or the licensee's representative must be sent to the FCC in Washington, D.C. prior to the 30th day.

(b) Licensees holding a construction permit for modified operation of directional facilities must request and obtain authority from the FCC in Washington, D.C. prior to using any new installation authorized by the permit, or using temporary facilities, if such use is deemed necessary, to maintain continued program service.

(1) The request is to be made at least 10 days prior to the date on which the temporary operation is to commence. The request is to be made by letter which shall describe the operating modes and facilities to be used. Such letter requests shall be signed by the licensee or the licensee's representative.

(2) Discontinuance of operation is permitted upon notification to the FCC in Washington, D.C. and the Engineer in Charge of the station's radio district. Should it be necessary to discontinue operation longer than 30 days, an informal letter request, signed by the licensee or the licensee's representative, must be sent to the FCC in Washington, D.C. prior to the 30th day.

(c) The FCC may modify or cancel the temporary operation permitted under the provisions of paragraphs (a) or (b) of this section without prior notice or right to hearing.

#### § 73.1620 Program tests.

(a) Upon completion of construction of an AM, FM or TV station in accordance with the terms of the construction permit, the technical provisions of the application, the rules and regulations and the applicable engineering standards, program tests may be conducted in accordance with the following:

(1) In the case of a nondirectional station, the permittee may begin program tests upon notification to the FCC in Washington, D.C. and the Engineer in charge of the station's radio district, provided that within 10 days thereafter, an application for a license is filed with the Commission in Washington, D.C.

(2) In the case of a station with a directional antenna system, the permittee must file an application for license requesting program test authority with the FCC in Washington, D.C., at least 10 days prior to the date on which it desires to begin such operation. Also, an antenna proof of performance must be filed with the request by an AM directional station.

(b) The FCC reserves the right to revoke or suspend program tests by any station without right of hearing for failure to comply adequately with all terms of the construction permit or in order to resolve instances of objectionable interference.

(c) Unless sooner suspended or revoked, the program test authority continues valid during FCC consideration of the application for license, and during this period further extension of the construction permit is not required. Program test authority shall be automatically terminated by final determination upon the application for station license.

(d) All operation under program test authority shall be in strict compliance with the rules governing broadcast stations and in strict accordance with representa-

tions made in the application for license pursuant to which the tests were authorized.

(e) Acceptance by the FCC of notification of the station of program tests, or the granting of program test authority by the FCC, is not to be construed by the permittee as approved by the FCC of the application for station license.

(f) The licensee of a UHF TV station which is not in operation on, but assigned to, the same allocated channel which a 1000 watt UHF translator station is authorized to use (see § 73.3516, "Specification of facilities"), shall notify the licensee of the translator station, in writing, at least 10 days prior to commencing or resuming operation. The TV station licensee shall also certify to the FCC in Washington, D.C. that such advance notice has been given to the translator station licensee.

#### § 73.1635 Special temporary authorizations (STA).

A special temporary authorization (STA) is the authority granted to permit the operation of a broadcast facility for a limited period at a specified variance with the terms of the station authorization or requirements of the FCC rules applicable to the particular class of station. Certain rules, however, permit temporary operation at variance without prior authorization from the FCC, when notification is filed as prescribed in the particular rules. See §§ 73.1615, "Operation during modification of facilities," 73.3511, "Applications required" and 73.3542, "Application for temporary authorization," for procedures on requesting special temporary authorizations. The FCC may modify or cancel a special temporary authorization without prior notice or right to hearing.

#### § 73.1650 International broadcasting agreements.

##### (a) *AM broadcast station agreements.*

(1) The U.S.A. is signatory to the North American Broadcasting Agreement (NARBA) with the Bahama Islands and Jamaica, Canada, Cuba and the Dominican Republic.

(2) The U.S.A. and Mexico are signatories to a separate agreement (U.S./Mexican Agreement).

(3) The U.S.A. has separate, bilateral agreements with Canada, Mexico and the Bahama Islands pertaining to presunrise authority.

##### (b) *FM broadcast station agreements.*

The U.S.A. is a signatory to separate, bilateral agreements concerning FM broadcast stations with the governments of Canada and Mexico.

##### (c) *TV broadcast station agreements.*

The U.S.A. is signatory to separate, bilateral agreements concerning TV broadcast stations with the governments of Canada and Mexico.

(d) All AM, FM and TV broadcast station agreements to which the U.S.A. is a signatory are available for inspection in the Office of the Chief, Broadcast Bureau of the FCC in Washington, D.C. Copies may be purchased from the FCC copy contractor. The contractor is:

Downtown Copy Center  
1114 21st Street, N.W.  
Washington, D.C. 20037

#### § 73.1660 Type acceptance of broadcast transmitters.

(a) A transmitter may be type accepted upon request of any manufacturer of transmitters following the type acceptance procedure described in Part 2 of the FCC's rules by submitting data and information to show that the transmitter meets the technical specifications for the type of broadcast service for which it is to be used. If acceptable the transmitter will be included on the FCC's published "radio equipment list."

(b) A permittee or licensee planning to install and use as a main transmitter one not included on the FCC's "radio equipment list" must obtain authority to use such a transmitter by filing an application for a construction permit on FCC form 301 (FCC form 340 for noncommercial educational stations). The application must include a complete description and circuit diagram of the transmitter, description of the carrier frequency determining circuits, complete operating parameters, and measurement data as required for type acceptance for the type of broadcast station at which it will be used.

(c) A transmitter which was in use prior to January 30, 1955, may continue to be used by the licensee, and successors or assignees, if it continues to comply with the technical requirements for the type of station at which it is used.

(d) Additional rules concerning type acceptance, modification of type accepted transmitters, and withdrawal of type acceptance are in Part 2 of the FCC's rules.

#### § 73.1665 Main transmitters.

(a) Each broadcast station must have one or more main transmitters which comply with the provisions of transmitter technical requirements for type and class of station. Main transmitters are those which are used for regular program transmissions having power ratings appropriate for the authorized operating power(s). In addition, AM stations must use transmitters meeting the power rating specifications of § 73.41.

(b) A licensee may, without further authority or notification to the FCC, replace an existing main transmitter or install additional main transmitters for use

with the authorized antenna if the replacement or additional transmitter(s) is type accepted as shown in the FCC "radio equipment list." Within 10 days after commencement of regular use of the replacement or additional transmitter(s), equipment performance measurements, as prescribed for the type of station are to be completed and a certification must be entered in the station, maintenance log by the station's consulting engineer, technical director, or chief operator that the station with the new transmitter(s), as installed, complies with the technical provisions of this Part.

NOTE.—After January 1, 1979, no new licenses will be issued nor will existing licenses be renewed for alternate main transmitters operating into a single main antenna system. Further, licenses issued after that date will no longer identify the specific transmitters which are shown in the FCC's "radio equipment list" as type accepted for broadcast use. Composite or other transmitting equipment which has been licensed for use based on data filed by the licensee will continue to be specified on station authorizations.

#### § 73.1668 Type approval of modulation monitors.

(a) A manufacturer desiring to obtain type approval of a modulation monitor must submit two copies of the full specifications of the monitor with the test data specified in the requirements for the particular type of monitor. (See § 73.50 for AM, § 73.332 for FM, or § 73.694 for TV monitors.) If this information appears to meet the requirements for type approval, the FCC will advise the manufacturer and request that a monitor be shipped to the Laboratory at Gilford, Maryland. Type approval of the monitor will be given only on the basis of data obtained by the FCC in testing the sample monitor supplied by the manufacturer.

(b) In approving the monitor upon the basis of tests conducted by the Laboratory, the FCC merely recognizes that type monitor has the inherent capability of functioning in compliance with the rules if properly constructed, maintained, and operated.

(c) All charges for shipping the sample monitor to and from the FCC Laboratory must be paid by the manufacturer.

(d) Additional information concerning modification of type approved equipment, withdrawal of type approval, and limitations on findings upon which type approval is based are contained in Part 2, Subpart J of the FCC rules.

【§ 73.1668 added eff. 4-30-80; III(80)-1】

#### § 73.1670 Auxiliary transmitters.

(a) A licensee of a broadcast station may, without further authority from the FCC, install and use with the main antenna system one or more auxiliary transmitters for the following purposes:

(1) The transmission of regular programs upon failure of the main transmitter.

(2) The transmission of regular programs during maintenance or modification of the main transmitter.

(3) Emergency broadcast system operation.

(4) The transmission of regular programs by an AM station under a Presunrise Service Authorization (PSA).

(5) The transmission of tests to determine the operating condition of the auxiliary transmitter or auxiliary antenna.

(6) For testing, upon the request of representatives of the FCC.

(b) Authorization to install an auxiliary transmitter for use with other than the main antenna must be obtained by filing an application for a construction permit on FCC Form 301 (FCC form 340 for noncommercial educational stations).

(c) The following technical and operating standards apply to auxiliary transmitters:

(1) The auxiliary transmitter may be operated on only the station's authorized frequency and within the required carrier frequency departure tolerance for the type of station.

(2) The carrier frequency of the auxiliary transmitter must be measured as often as necessary to insure that it is maintained within the prescribed tolerance. If the transmitter is used daily for a period of more than 40 days, the measurement must be made at least once each calendar month with not more than 40 days between successive measurements.

(3) When using an auxiliary transmitter, the operating power may be less than the authorized power but may not exceed the authorized power within the permitted tolerance for the type of station. If operation with an auxiliary transmitter at reduced power continues for a period exceeding 10 days, the FCC in Washington, D.C. must be notified. (See § 73.52, AM; § 73.267, FM; § 73.567, NCE-FM; and § 73.689, TV.)

(4) If the operation of an auxiliary transmitter exceeds 2 consecutive days, an aural modulation monitor must be used with monitor indications available at the transmitter control point.

(5) Normal operator requirements apply to the operation of the auxiliary transmitter.

**NOTE.**—After January 1, 1979, new licenses will not be issued nor will existing licenses be renewed for auxiliary transmitters that are operated into the main antenna system.

#### § 73.1675 Auxiliary antennas.

(a) An auxiliary antenna is one that is permanently installed and available for use when the main antenna is out of service for repairs or replacement. An auxilli-

ary antenna may be located at the same transmitter site as the station's main antenna or at a separate site. In either case, however, the coverage area when operating with the auxiliary antenna may not extend beyond the coverage area of the main antenna. An application for an auxiliary antenna authorization filed under the procedures given in paragraphs (b) or (c) of this section must contain a map showing the following contours for both the main and auxiliary antenna radiation:

(1) *AM stations*: The 0.5 mv/m field strength contours.

(2) *FM stations*: The 1.0 mv/m field strength contours.

(3) *TV stations*: The Grade B coverage contours.

(b) An application for a construction permit to install a new auxiliary antenna, or to make changes in an existing auxiliary antenna for which prior FCC authorization is required (see §§ 73.257, 73.557, or 73.639), must be filed on FCC Form 301 (FCC Form 340 for noncommercial educational stations).

(c) Authority to use a formerly licensed main antenna without changes or modifications as an auxiliary antenna may be obtained by filing FCC Form 302 (FCC Form 341 for noncommercial educational stations).

【§ 73.1675(a) revised eff. 4-30-80; III(80)-1】

#### § 73.1680 Emergency antennas.

(a) An emergency antenna is one that is erected for temporary use after the authorized main and auxiliary antennas are damaged and cannot be used.

(b) Prior authority from the FCC is not required to erect and commence using an emergency antenna to restore program service to the public. However, an informal request to continue operation with the emergency antenna must be made to the FCC in Washington, D.C. within 24 hours after commencement of its use. The request is to include a description of the damage to the authorized antenna, a description of the emergency antenna, and the station operating power with the emergency antenna.

(1) *AM stations*. AM stations may use a horizontal or vertical wire or a nondirectional vertical element of a directional antenna as an emergency antenna.

(2) *FM and TV stations*. FM and TV stations may erect any suitable radiator, or use operable sections of the authorized antenna(s) as an emergency antenna.

(c) The FCC may prescribe the output power, radiation limits, or other operating conditions when using an emergency antenna, and emergency antenna authorizations may be modified or terminated in the event harmful interference is caused to other stations or services by the use of an emergency antenna.



## OPERATING HOURS

## § 73.1700 Broadcast day.

The term "broadcast day" means that period of time between the station's sign-on and its sign-off.

## § 73.1705 Time of operation.

(a) Commercial and noncommercial educational TV and commercial FM stations will be licensed for unlimited time operation. Application may be made for voluntary share-time operation.

(b) Noncommercial educational FM stations will be licensed for unlimited and share time operation according to the provisions of § 73.561.

(c) AM stations will be licensed for unlimited time, limited time, daytime, share time or specified hours.

## § 73.1710 Unlimited time.

Operation is permitted 24 hours a day.

## § 73.1715 Share time.

Operation is permitted by two or more broadcast stations using the same channel in accordance with a division of hours mutually agreed upon and considered part of their licenses.

(a) If the licenses of stations authorized to share time do not specify hours of operation, the licensees shall endeavor to reach an agreement for a definite schedule of periods of time to be used by each. Such agreement shall be in writing and each licensee shall file it in triplicate original with each application to the FCC in Washington, D.C. for renewal of license. If and when such written agreements are properly filed in conformity with this Section, the file mark of the FCC will be affixed thereto, one copy will be retained by the FCC, one copy forwarded to the Engineer in Charge of the radio district in which the station is located, and one copy returned to the licensee to be posted with the station license and considered as a part thereof. If the license specifies a proportionate time division, the agreement shall maintain this proportion. If no proportionate time division is specified in the license, the licensees shall agree upon a division of time. Such division of time shall not include simultaneous operation of the stations unless specifically authorized by the terms of the license.

(b) If the licensees of stations authorized to share time are unable to agree on a division of time, the FCC in Washington, D.C. shall be so notified by a statement filed with the applications for renewal of licenses. Upon receipt of such statement, the FCC will designate the applications for a hearing and, pending such hearing, the operating schedule previously adhered to shall remain in full force and effect.

(c) A departure from the regular schedule in a time-sharing agreement will be permitted only in cases where an agreement to that effect is put in writing, is signed by the licensees of the stations affected thereby and filed in triplicate by each licensee with the FCC in Washington, D.C. prior to the time of the proposed change. If time is of the essence, the actual

departure in operating schedule may precede the actual filing of written agreement, provided appropriate notice is sent to the FCC.

(d) If the license of an AM station authorized to share time does not specify the hours of operation, the station may be operated for the transmission of regular programs during the experimental period provided an agreement thereto is reached with the other stations with which the broadcast day is shared and further provided such operation is not in conflict with § 73.72 (Operating during the experimental period). Time-sharing agreements for operation during the experimental period need not be submitted to the FCC.

(e) Noncommercial educational FM stations are authorized for share time operation according to the provisions of § 73.561.

## § 73.1720 Daytime.

Operation is permitted during the hours between average monthly local sunrise and average monthly local sunset.

(a) The controlling times for each month of the year are stated in the station's instrument of authorization. Uniform sunrise and sunset times are specified for all of the days of each month, based upon the actual times of sunrise and sunset for the fifteenth day of the month adjusted to the nearest quarter hour. Sunrise and sunset times are derived by using the Standardized Procedure and the tables in the 1946 American Nautical Almanac issued by the United States Naval Observatory.

## § 73.1725 Limited time.

(a) Operation is applicable only to Class II (secondary) AM stations on a clear channel with facilities authorized before November 30, 1959. Operation of the secondary station is permitted during daytime and until local sunset if located west of the dominant station on the channel, or until local sunset at the dominant station if located east of that station. Operation is also permitted during nighttime hours not used by the dominant station or stations on the channel.

(b) No authorization will be granted for:

(1) A new limited time station;

(2) A limited time station operating on a changed frequency;

(3) A limited time station with a new transmitter site materially closer to the 0.1 mV/m contour of a co-channel U.S. Class I station; or

(4) Modification of the operating facilities of a limited time station resulting in increased radiation toward any point on the 0.1 mV/m contour of a co-channel U.S. Class I station during the hours after local sunset in which the limited time station is permitted to operate by reason of location east of the Class I station.

(c) The licensee of a secondary station which is authorized to operate limited time and which may resume operation at the time the dominant station (or

stations) on the same channel ceases operation shall, with each application for renewal of license, file in triplicate a copy of its regular operating schedule. It shall bear a signed notation by the licensee of the dominant station of its objection or lack of objection thereto. Upon approval of such operating schedule, the FCC will affix its file mark and return one copy to the licensee authorized to operate limited time. This shall be posted with the station license and considered as a part thereof. Departure from said operating schedule will be permitted only pursuant to § 73.1715 (Share time).

(d) If the licensee of a secondary station authorized to operate limited time and a dominant station on a channel are unable to agree upon a definite time for resumption of operation by the station authorized limited time, the FCC in Washington, D.C. shall be so notified by the licensee of the station authorized limited time. After receipt of such notice, the FCC will designate for hearing the applications of both stations for renewal of license and, pending the hearing, the schedule previously adhered to shall remain in full force and effect.

#### § 73.1730 Specified hours.

(a) Specified hours stations must operate in accordance with the exact hours specified in their license. However, such stations, operating on local channels, unless sharing time with other stations, may operate at hours beyond those specified in their licenses to carry special events programming. When such programs are carried during nighttime hours, the station's authorized nighttime facilities must be used.

(b) Other exceptions to the adherence to the schedule of specified hours of operation are provided in § 73.72 (Operating during the experimental period), § 73.1250 (Broadcasting emergency information) and § 73.1740 (Minimum operating schedule).

#### § 73.1735 Presunrise service authority (PSA).

Licensees of certain classes of AM stations are eligible to request presunrise service authority (see § 73.99).

#### § 73.1740 Minimum operating schedule.

(a) All commercial broadcast stations are required to operate not less than the following minimum hours:

(1) *AM and FM stations:* Two-thirds of the total hours they are authorized to operate between 6 a.m. and 6 p.m. local time and two-thirds of the total hours they are authorized to operate between 6 p.m. and midnight, local time, each day of the week except Sunday.

(i) Daytime AM stations need comply only with the minimum requirements for operation between 6 a.m. and 6 p.m., local time.

(2) *TV stations:*

(i) During the first 36 months of operation, not less than 2 hours daily in any 5 broadcast days per calendar week and not less than a total of:

(A) 12 hours per week during the first 18 months.

(B) 16 hours per week during the 19th through 24th months.

(C) 20 hours per week during the 25th through 30th months.

(D) 24 hours per week during the 31st through 36th months.

(ii) After 36 months of operation, not less than 2 hours in each day of the week and not less than a total of 28 hours per calendar week.

(iii) Visual transmissions of test patterns, slides or still pictures accompanied by unrelated aural transmissions may not be counted in computing program service (see § 73.653).

(3) "Operation" includes the period during which the station is operated pursuant to temporary authorization or program tests, as well as during the license period.

(4) In the event that causes beyond the control of a licensee make it impossible to adhere to the operating schedule of this section or to continue operating, the station may limit or discontinue operation for a period of not more than 30 days without further authority from the FCC. Notification must be sent to the FCC in Washington, D.C. not later than the 10th day of limited or discontinued operation. During such period, the licensee shall continue to adhere to the requirements in the station license pertaining to the lighting of antenna structures. In the event normal operation is restored prior to the expiration of the 30 day period, the licensee will so notify the FCC of this date. If the causes beyond the control of the licensee make it impossible to comply within the allowed period, informal written request shall be made to the FCC no later than the 30th day for such additional time as may be deemed necessary.

(b) Noncommercial educational AM and TV stations are not required to operate on a regular schedule and no minimum hours of operation are specified; but the hours of actual operation during a license period shall be taken into consideration in the renewal of noncommercial educational AM and TV broadcast licenses. Noncommercial educational FM stations are subject to the operating schedule requirements according to the provisions of § 73.561

#### § 73.1745 Unauthorized operation.

(a) No broadcast station shall operate at times, or with modes or power, other than those specified and made a part of the license, unless otherwise provided in this Part.

(b) Any unauthorized departure from an operating schedule which is required to be filed with the FCC in Washington, D.C., will be considered as a violation of a material term of the license.

#### § 73.1750 Discontinuance of operation.

The licensee of each station shall notify the FCC in Washington, D.C. and the Engineer in Charge of the radio district where such station is located of permanent discontinuance of operation at least two days before operation is discontinued. Immediately after

continuance of operation, the licensee shall forward the station license and other instruments of authorization to the Washington, D.C., office of the FCC for cancellation.

**§ 73.1800 General requirements relating to logs.**

(a) The licensee of each station shall maintain logs as set forth in §§ 73.1810, 73.1820 and 73.1830. Each log shall be kept by the station employee or employees (or contract operator) competent to do so, having actual knowledge of the facts required. The person keeping the log must make entries that accurately reflect the operation of the station. In the case of program and operating logs, the employee shall sign the appropriate log when starting duty and again when going off duty and setting forth the time of each. In the case of maintenance logs, the employee shall sign the log upon completion of the required maintenance and inspection entries. When the employee keeping a program or operating log signs it upon going off duty or completing maintenance log entries, that person attests to the fact that the log, with any corrections or additions made before it was signed, is an accurate representation of what transpired.

(b) The logs shall be kept in an orderly and legible manner, in suitable form and in such detail that the data required for the particular class of station concerned are readily available. Key letters or abbreviations may be used if proper meaning or explanation is contained elsewhere in the log. Each sheet shall be numbered and dated. Time entries shall be made in local time and shall be indicated as advanced (*e.g.*, EDT) or non-advanced time (*e.g.*, EST).

(c) Any necessary corrections of a manually kept log after it has been signed in accordance with (a) above shall be made only by striking out the erroneous portion and making a corrective explanation on the log or attachment to it. For program logs, such corrections shall be dated and signed by the person who kept the log or the program director, or the station manager or an officer of the licensee. For operating and maintenance logs, such corrections shall be dated and signed by the person who kept the log or the station technical supervisor, the station manager, or an officer of the licensee.

(d) No automatically kept log shall be altered in any way after entries have been recorded. When automatic logging processes fail or malfunction, the log must be kept manually for that period and in accordance with the requirements of this Section.

(e) No log, or portion thereof, shall be erased, obliterated or willfully destroyed during the period in which it is required to be retained. (§ 73.1840, Retention of logs.)

(f) Entries shall be made in the logs as required by §§ 73.1810, 73.1820 and 73.1830. Additional information such as that needed for administrative or operational purposes may be entered on the logs. Such additional information, so entered, shall not be subject to the restrictions and limitations in the FCC's rules on the making of corrections and changes in logs and may be

physically removed, without otherwise altering the log in any way, before making the log a part of an application or available for public inspection.

(g) The operating log and the maintenance log may be kept individually on the same sheet in one common log, at the option of the licensee.

(h) Application forms for licenses and other authorizations require that certain operating and program data be supplied. These application forms should be kept in mind in connection with maintenance of station program and operating records.

【§ 73.1800(a) revised eff. 4-3-81; III(80)-1】

**COMMERCIAL STATIONS**

**§ 73.1810 Program logs.**

(a) Commercial TV stations shall keep a program log in accordance with the provisions of § 73.1800 for each broadcasting day which, in this context, means from the station's sign-on to its sign-off.

(1) Commercial AM and FM stations are *not* required to keep program logs.

(b) *Entries.*

The following entries shall be made in the program log:

(1) *For each program.*

(i) An entry identifying the program by name or title.

(ii) Entries which indicate the time each program begins and ends. If programs are broadcast during which separately identifiable program units of a different type or source are presented, and if the licensee wishes to count such units separately, the beginning and ending time for the longer program need be entered only once. The program units which the licensee wishes to count separately shall then be entered underneath the entry for the longer program, with the beginning and ending time of each such unit.

(iii) An entry classifying each program as to type, using the definitions given in paragraph (d)(1) of this Section.

(iv) An entry classifying each program as to source, using the definitions set forth in paragraph (d)(2) of this Section. (For network programs, also give name or initials of the network, *e.g.*, ABC, CBS, NBC, Mutual.)

(v) An entry for each program representing a political candidate, showing the name and political affiliation of such candidate.

(2) *For commercial matter.*

(i) An entry identifying: the sponsor(s) of the program, the person(s) who paid for the announcement or the person(s) who furnished materials or services. The entry shall constitute a representation that identification was announced on the air as required by Section 317 of the Communications Act and § 73.1212 of the FCC's rules. See paragraph (d)(3) of this Section for the definition of commercial matter.

(ii) An entry or entries showing the total duration of commercial matter in each hourly time segment (beginning on the hour) or the duration of each commercial message (commercial continuity in sponsored pro-

grams, or commercial announcements) in each hour. See paragraph (d)(3)(iii) of this Section concerning computation of commercial time.

(3) *For public service announcements.*

An entry showing that a public service announcement (PSA) has been broadcast together with the name of the organization or interest on whose behalf it is made. See paragraph (d)(4) of this Section for definition of a public service announcement.

(4) *For other announcements.*

(i) An entry of the time that each required station identification announcement is made (pursuant to § 73.1201).

(ii) An entry for each announcement presenting a political candidate, showing the name and political affiliation of such candidate.

(iii) An entry for each announcement made pursuant to the local notice requirements of §§ 73.3580 (pregrant), 73.3594 (designation for hearing) and 73.1202 (licensee obligations), showing the time it was broadcast.

(iv) An entry for each announcement made pursuant to § 73.1208 concerning the broadcast of taped, filmed or recorded material.

(5) *For Emergency Broadcast System Operations.* An entry for tests of the EBS procedures pursuant to the requirements of Subpart G of this Part and the appropriate station EBS checklist, unless such entries are consistently made in the station Operating Log.

(c) *National network programming.*

A station broadcasting the programs of a national network which will supply it with all information as to such programs for the composite week need not log such data but shall record in its log the time when it joined the network, the name of each network program broadcast, the time it leaves the network, and any non-network matter broadcast which is required to be logged. The information supplied by the network for the composite week which the station will use in its renewal application, shall be retained with the program logs and associated with the log pages to which it relates.

(d) *Definitions.*

(1) *Program type.*

The definitions of the first eight types of programs (1) through (viii), below, are intended not to overlap each other and will normally include all the various programs broadcast. Definitions (ix) through (xi) are subcategories and the programs classified thereunder will also be classified under one of the appropriate first eight types. There may also be further duplication within types (ix) through (xi) (e.g., a program presenting a candidate for public office, prepared by an educational institution, would be classified as Public Affairs (PA), Political (POL) and Educational Institution (ED)).

(i) *Agricultural programs (A)* include market reports, farming or other information specifically addressed, or primarily of interest to the agricultural population.

(ii) *Entertainment programs (E)* include all programs intended primarily as entertainment, such as music, drama, variety, comedy, quiz, etc.

(iii) *News programs (N)* include reports dealing with current local, national and international events, including weather and stock market reports; and commentary, analysis and sports news when an integral part of a news program.

(iv) *Public affairs programs (PA)* are programs dealing with local, state, regional, national or international issues or problems, including, but not limited to, talks, commentaries, discussions, speeches, editorials, political programs, documentaries, mini-documentaries, panels, roundtables, vignettes, and extended coverage (whether live or recorded) of public events or proceedings, such as local council meetings, Congressional hearings and the like.

(v) *Religious programs (R)* include sermons or devotionals; religious news; and music, drama and other types of programs designed primarily for religious purposes.

(vi) *Instructional programs (I)* are primarily intended to instruct. They further the appreciation or understanding of such subjects as literature, music, fine arts, history, geography, the natural and social sciences, hobbies and occupations and vocations.

(vii) *Sports programs (S)* include play-by-play and pre-game or post-game related activities and separate programs of sports instruction, news or information (e.g., fishing opportunities, golfing instruction, etc.)

(viii) *Other programs (O)* include all programs not falling within definitions (1) through (vii).

(ix) *Editorials (EDIT)* include programs presented for the purpose of stating opinions of the licensee.

(x) *Political programs (POL)* include those which present candidates for political office or which give expressions (other than in station editorials) to views on such candidates or on issues subject to public ballot.

(xi) *Educational Institution programs (ED)* include those prepared by, on behalf of, or in cooperation with educational institutions, educational organizations, libraries, museums, PTA's, or similar organizations. Sports programs shall not be included.

(2) *Program source.*

(i) *A local program (L)* is any program originated or produced by the station or for the production of which the station is primarily responsible, employing live talent more than 50% of the time. Such a program, taped, recorded or filmed for later broadcast, shall be classified as local. A local program fed to a network shall be classified by the originating station as local. Programs primarily featuring records, tapes, syndicated or feature film or other non-locally recorded programs, shall be classified as recorded (REC) even though a station announcer appears in connection with such material. However, identifiable units of such programs which are live and separately logged as such may be classified as local. For example, if during the course of a program featuring records or films, a

non-network 2-minute news report is given and logged as a news program, the report may be classified as local.

(ii) A *network program* (NET) is any program furnished to the station by a network (national, regional or special). Delayed broadcasts of program originated by networks are classified as network.

(iii) A *recorded program* (REC) is any program not otherwise defined in this paragraph including, without limitation, those using recordings, tapes or films.

(3) *Commercial matter* (CM) includes commercial continuity (network and non-network) as follows: (Distinction between continuity and announcements is made only for definition purposes. There is no need to distinguish the two types of commercial matter when logging.)

(i) *Commercial continuity* (CC) is the advertising message of a program sponsor.

(ii) A *commercial announcement* (CA) is any other advertising message for which a charge is made, or other consideration is received. Included are bonus spots, trade-out spots, promotional announcements of a future program where consideration is received for such an announcement or where such announcement identifies the sponsor of a future program beyond mention of the sponsor's name as an integral part of the title of the program, and promotional announcements broadcast by any AM, FM or TV station for another commonly owned or controlled station serving the same community.

(iii) *Computation of commercial time*: Duration of commercial matter shall be as close an approximation to the time consumed as possible. The amount of commercial time scheduled will usually be sufficient. It is not necessary, for example, to correct an entry of a 1-minute commercial to accommodate varying reading speeds even though the actual time consumed might be a few seconds more or less than the scheduled time. However, it is incumbent upon the licensee to ensure that the entry represents as close an approximation of the time actually consumed as possible. For certain sponsored programs, it is difficult to measure the exact length of what would be considered as commercial matter, *e.g.*, some sponsored religious and political programs. For such programs, the licensee is not required to compute the amount of commercial matter, but merely to log and announce the program as sponsored.

This exception does not apply to any program advertising commercial products or services, nor to any commercial announcements.

(4) *Public service announcement* (PSA) is one for which no charge is made and which promotes programs, activities or services of Federal, State or local governments (*e.g.*, recruiting, sales of U.S. Savings Bonds, etc.) or the programs, activities or services of nonprofit organizations (*e.g.*, UGF, Red Cross, Blood Donations, etc.) or any other announcements regarded as serving community interests.

#### NONCOMMERCIAL EDUCATIONAL STATIONS

(e) A program log for stations licensed or operating as noncommercial educational stations shall be kept in accordance with the provisions of § 73.1810 for each broadcast day, which, in this context means from the station's sign-on to its sign-off.

(f) *Entries.*

The following entries shall be made in the program log:

(1) *For each program.*

(i) An entry identifying the program by name or title.

(ii) Entries which indicate the time each program begins and ends. If programs are broadcast during which separately identifiable program units of a different type or source are presented, and if the licensee wishes to count such units separately, the beginning and ending time for the longer program need to be entered only once. The program units which the licensee wishes to count separately shall then be entered underneath the entry for the longer program with the beginning and ending time of each such unit.

(iii) An entry classifying each program as to source using the definitions set forth in paragraph (h) (1) of this Section. (For network programs, also give name or initials of network, *e.g.*, PBS, NPR, etc.)

(iv) An entry classifying each program as to type, using the definitions set forth in paragraph (h) (2) of this Section.

(v) An entry for each program presenting a political candidate, showing the name and political affiliation of such candidates.

(2) *For donor announcements.*

An entry giving the name(s) of any donor(s) or person(s) furnishing money, service or other valuable consideration, in accordance with the provisions of § 73.503, § 73.621, including Notes, and § 73.1212; and the entry shall constitute a representation that identification was announced on the air in accordance with the provisions of those Sections and Section 317 of the Communications Act. As an alternative to giving the name, an entry of the word "Donor(s)" may be made, provided that the log shall clearly indicate that the name of the donor(s) or person(s) is retained in the station's public file. Such information for a given series of programs need be entered in the public file only once, provided the information is identical for each program in the series. The information shall be retained in the public file for a period of two years. Program logs submitted to the FCC must include a list of the names of donors indicated thereon.

(3) *For public service announcements.*

An entry showing that a public service announcement (PSA) has been broadcast, together with the name of the organization or interest on whose behalf it is made. See paragraph (h) (3) of this Section for definition of a public service announcement.

(4) *For other announcements.*

(i) An entry of the time that each required station identification announcement is made pursuant to § 73.1201.

(ii) An entry for each announcement presenting a political candidate showing the name and political affiliation of such candidate.

(iii) An entry for each announcement made pursuant to the local notice requirements of §§ 73.3580 (pre-grant) and 73.3594 (designation of hearing), showing the time it was broadcast.

(iv) An entry for each announcement made pursuant to § 73.1208 concerning the broadcast of taped, filmed or recorded material.

(5) *For Emergency Broadcast System Operations.*

An entry for each test of the EBS procedures pursuant to the requirements of Subpart G of this Part and the appropriate station EBS checklist, unless such entries are consistently made in the Station Operating Log.

(g) *Network programming.*

A station broadcasting the programs of a network (see "network program," paragraph (h) (1) (iii) of this Section) which will supply it with all information as to such programs necessary for the "full week of operation" (FCC Form 342) need not log such data but shall record in its log the name of each network program broadcast, the time the program was broadcast (beginning and ending) and any non-network matter broadcast which is required to be logged. The information supplied by the network for the "full week" which the station will use in its renewal application shall be retained with the program logs and associated with the log pages to which it relates.

(h) *Definitions.*

(1) *Program source.*

(i) A *local program* (L) is any program originated or produced by the station or for the production of which the station is primarily responsible, employing live talent more than 50% of the time. Such a program, taped, filmed or recorded for later broadcast, shall be classified as local. A local program fed to the network shall be classified by the originating station as local.

(ii) A *record program* (REC) (Radio only) is any program not falling within the definition of "local" above, which utilizes records, transcriptions or taped music, with or without commentary by a local announcer or other station personnel.

(iii) A *network program* (NET) is any program furnished to the station by a network (national, regional or special). Delayed broadcasts of programs originated by networks are classified as network.

(iv) *Other programs* (OTHER) are any programs not defined above, including, without limitation, syndicated and feature films, and taped or transcribed programs.

(2) *Program type.*

(i) *Instructional* (I) includes all programs designed to be utilized by any level of educational institution in the regular instructional program of the institution.

In-school, in-service for teachers and college credit courses are examples of instructional programs.

(ii) *General Educational* (GEN) is an educational program for which no formal credit is given.

(iii) *Performing Arts* (A) is a program in which the performing aspect predominates such as drama or concert, opera or dance.

(iv) *News* (NS) programs include reports dealing with current local, national and international events, including weather and stock market reports; and commentary, analysis or sports news when an integral part of a news program.

(v) *Public Affairs* (PA) includes programs dealing with local, state, regional, national or international issues or problems, including, but not limited to, talks, commentaries, discussions, speeches, political programs, documentaries, mini-documentaries, panels, roundtables, vignettes and extended coverage (whether live or recorded) of public events or proceedings such as local council meetings, Congressional hearings, and the like.

(vi) *Light Entertainment* (LE) includes programs consisting of popular music or other light entertainment.

(vii) *Other* (O) includes all programs not falling within the definitions of Instructional, General Education, Performing Arts, News, Public Affairs or Light Entertainment. Sports programs should be reported as "Other."

(3) *Public Service Announcements* (PSA) is one which promotes programs, activities, or services of Federal, State or local governments (e.g., recruiting, sales of U.S. Savings Bonds, etc.) or the programs, activities or services of nonprofit organizations (e.g., UGF, Red Cross, Blood Donations, etc.), or any other announcement regarded as serving community interest. See, however, §§ 73.503 (d) and 73.621 (e) with respect to the preclusion of announcements promoting the sale of a product or service.

ALL STATIONS, COMMERCIAL AND NONCOMMERCIAL

(i) *Manually kept logs.*

(1) Entries on a manually kept log may be made either at the time of or prior to broadcast. The employee responsible for keeping the log shall sign the log when starting duty and when going off duty and enter the time of each.

(2) If entries are preprinted prior to broadcast and any deviation therefrom occurs in what was actually broadcast, an appropriate correction must be made on the log.

(3) When the employee keeping the log signs the log upon going off duty, that person attests to the fact that the log, with any corrections or additions made before he signed off, is an accurate representation of what was actually broadcast.

(j) *Automatically kept logs.*

(1) Entries on an automatically kept program log may be made by automatic logging instruments with

sequential language printouts corresponding to manually kept log entries.

(2) An employee on duty shall be responsible for the automatic logging process and the keeping of the log. In the event of failure or malfunctioning of the automatic logging process, the person responsible for the log shall make the required entries in the log manually.

(3) The employee responsible shall sign the log, or a separate page to be affixed to the log, when starting duty and when going off duty and enter the time of each. The signature when going off duty constitutes a certification that, as to the automatic printout part of the log, the employee checked the automatic logging equipment periodically throughout the tour and that to the best of his knowledge and belief, at no time during his tour did it fail or malfunction, unless otherwise noted above the signature; and that, as to any part of the log which was kept manually with any corrections or additions made thereon before signing off duty, it was an accurate representation of what was actually broadcast.

(k) *Automatic maintenance of logging data.*

(1) An employee on duty shall be responsible for any automatic maintenance of data and the keeping of the log. In the event of failure or malfunctioning of the said automatic process, the employee responsible for the log shall make the required entries in the log manually at that time.

(2) The employee responsible shall sign, on a separate page to be affixed to the logging data, when starting duty and when going off duty and enter the time of each. The signature, when going off duty, constitutes a certification that the employee periodically checked the automatic maintenance of data equipment throughout the tour and to the best of his knowledge and belief it did not fail or malfunction, unless otherwise noted above the signature. The signature further certifies that any part of the log which was kept manually is an accurate representation of what was actually broadcast.

(3) The licensee shall extract any required information from automatically maintained program logging data for days specified by the FCC or its duly authorized representative and submit it in written form, together with the underlying recording, tape or other means employed, within such time as the FCC may specify.

(1) *Information required.* The licensee, whether employing manual logging, automatic logging, or automatic maintenance of logging data, or any combination thereof, must be able to accurately furnish the FCC with all information required to be logged.

【§ 73.1810(a) revised eff. 4-3-81; III(80)-1】

#### § 73.1820 Operating logs.

(a) Entries shall be made in the operating log either manually by a properly licensed operator in actual charge of the transmitting apparatus, or by automatic devices meeting the requirements of paragraph (b) of this Section. Indications of operating parameters shall be logged prior to any adjustment of the equipment.

Where adjustments are made to restore parameters to their proper operating values, the corrected indications shall be logged and accompanied, if any parameter deviation was beyond a prescribed tolerance, by a notation describing the nature of the corrective action. Indications of all parameters whose values are affected by modulation of the carrier shall be read without modulation. The actual time of observation shall be included in each log entry. The following information must be entered.

(1) *All stations:*

(i) Entries of the time the station begins to supply power to the antenna and the time it ceases to do so.

(ii) Entries required by § 17.49(a), (b) and (c) of this Chapter concerning the time the tower lights are turned on and off each day if manually controlled, the time the daily check of proper operation of the tower lights was made if an automatic alarm system is not used, and any observed failure of the lighting system. See § 17.47(a) for daily tower lighting observation or automatic alarm system requirements.

(iii) Any entries not specifically required in this Section, but required by the instrument of authorization or elsewhere in this Part.

(iv) An entry of each test of the Emergency Broadcast System procedures pursuant to the requirements of Subpart G of this Part and the appropriate station EBS checklist, unless such entries are consistently made in the station Program Log.

(2) *AM stations:*

(i) An entry at the beginning of operations in each mode of operation, and thereafter at intervals not exceeding 3 hours, of the following (actual readings observed prior to making any adjustments to the equipment and an indication of any corrections to restore parameters to normal operating values);

(A) Operating constants for determining the DC input power to the last radio frequency power amplifier stage of the transmitter (plate voltage and current or other parameters appropriate for the type of amplifier used).

(B) Antenna current for nondirectional operation or common point current for directional operation.

(ii) When the operating power is determined by the indirect method, the efficiency factor  $F$  and either the product of the final amplifier input voltage and current or the calculated antenna input power. See § 73.51(e).

(iii) For stations with directional antennas, the following additional indications shall be read and entered in the Operating Log at the time of commencement of operation in each mode and thereafter, at successive intervals not exceeding 3 hours in duration:

(A) Antenna monitor phase or phase deviation indications.

(B) Antenna monitor sample currents, current ratios, or ratio deviation indications.

(3) *FM stations:*

(i) For each station licensed for transmitter output power greater than 10 watts, an entry, at the beginning of operation and at intervals not exceeding 3 hours, of

the following (actual readings observed prior to making any adjustments to the equipment and an indication of any corrections made to restore parameters to normal operation values):

(A) Operating constants for determining the DC input power to the last radio frequency power amplifier stage of the transmitter (plate voltage and current or other parameters appropriate for the type of amplifier used).

(B) RF transmission line meter readings when the transmitter operating power is determined by the direct method.

(4) *TV stations:*

(i) An entry at the beginning of operation and at intervals not exceeding 3 hours, of the following (actual readings observed prior to making any adjustments to the equipment and an indication of any corrections to restore parameters to normal operating values):

(A) Operating constants for determining the DC input power to the last radio frequency power amplifier stage of the aural transmitter (plate voltage and current or other parameters appropriate for the type of amplifier used) if power of the aural transmitter is being determined by the indirect method.

(B) RF transmission line meter readings for visual transmitter, and also for the aural transmitter when the aural transmitter operating power is determined by the direct method.

(C) For remote control operation, the results of observations of vertical interval test signal (VIT) transmissions (see § 73.676(f)).

(b) Automatic devices accurately calibrated and with appropriate time, date and circuit functions may be utilized to record the entries in the operating log provided:

(1) The recording devices do not affect the operation of circuits or accuracy of indicating instruments of the equipment being recorded;

(2) The recording devices have an accuracy equivalent to the accuracy of the indicating instruments;

(3) The calibration is checked against the original indicators at least once each calendar week and the results noted in the Maintenance Log;

(4) Provision is made to actuate automatically an aural alarm circuit located near the operator on duty if any of the automatic log readings are not within the tolerances or other requirements specified in the rules or station license;

(5) The alarm circuit operates continuously or the devices which record each parameter in sequence must read each parameter at least once during each 30-minute period;

(6) The automatic logging equipment is located at the remote control point if the transmitter is remotely controlled, or at the transmitter location if the transmitter is manually controlled;

(7) The automatic logging equipment is located in the near vicinity of the operator on duty and is inspected periodically during the broadcast day. In the event of failure or malfunctioning of the automatic

equipment, the employee responsible for the log shall make the required entries in the log manually at that time;

(8) The indicating equipment conforms to the requirements of § 73.1215 (specifications for indicating instruments) except that the scales need not exceed 2 inches in length. Arbitrary scales may not be used.

(c) In preparing the Operating Log, original data may be recorded in rough form and later transcribed into the log.

(d) If required by AM or FM station operator requirements, each completed Operating Log shall bear a signed notation by the station's designated chief operator of the results of the review of that log, and show the date and time of such review.

**§ 73.1830 Maintenance logs.**

(a) The licensee of each broadcast station shall keep a Maintenance Log. Entries in the log shall be made by the holder of a radiotelephone first-class license (or the holder of a radiotelephone second-class license for noncommercial educational FM stations authorized to operate with a transmitter output power of 1 kilowatt or less), and shall reflect the results of maintenance procedures or of observations performed. The following information shall be entered:

(1) *All stations:*

(i) An entry of the time and result of auxiliary transmitter test(s).

(ii) An entry of the calibration check of automatic logging devices when used under the provisions of § 73.1820 (Operating Logs).

(iii) An entry of all carrier frequency measurements, including the date performed and description of method used as required by § 73.1540 (Carrier frequency measurements).

(iv) An entry of the results of calibration of extension meters used against their corresponding regular meters as required by § 73.1550 (Extension meters).

(v) An entry of the results of calibration of indicating instruments at each remote control point against the corresponding instruments at the transmitter site, as required by the rules, for use of remote control (AM, § 73.67; FM, § 73.275; NCE-FM, § 73.375; and TV, § 73.676).

(vi) The entries required by § 17.49(d) of this Chapter concerning quarterly inspections of the condition of tower lights and associated control equipment and entries when towers are cleaned or repainted as required by § 17.50 of this Chapter.

(vii) An entry to describe fully any experimental operation pursuant to § 73.1510 (Experimental operation) and § 73.1520 (Operation for tests and maintenance).

(viii) An entry of the date and time of removal from and restoration to service of any of the following equipment in the event it becomes defective;

(A) Modulation monitor (aural).

(B) Any transmission system meter, the reading of which is required to be entered into the station Operating or Maintenance Log.

(C) Devices for monitoring or generating the EBS Attention Signal.

(2) *AM stations.* In addition to the entries specified in subparagraph (a) (1) above:

(i) An entry of the calibration check of remote reading antenna and common point ammeters against their corresponding regular meters when used under the provisions of § 73.57, including the actual reading of the meters prior to and after calibration.

(ii) For stations using directional antennas, an entry of the calibration of the antenna monitor using procedures specified by the monitor manufacturer's instructions.

(iii) For stations using directional antennas, an entry of the result of field strength measurements made at the specified monitoring points if such measurements are required either by the terms of the station license or § 73.93(e) (4) (Operator requirements).

(iv) For stations using directional antennas, an entry of the following observations (made without modulation if readings are affected by modulation) for each directional radiation pattern. Observations must be made at least three days of each calendar week, not less than 44 hours, not more than 76 hours, apart.

(A) Common point current.

(B) Base currents, their ratios, and the deviations of those ratios, in percent, from values specified in the station authorization.

(C) Antenna monitor sample currents or current ratios and computed deviations of current ratios, in percent, from values specified in the station authorization.

(D) Antenna monitor phase indications and the deviations of those indications, in degrees, from values specified in the station authorization.

**NOTE:** Direct control stations having a radiotelephone first-class operator on duty for all periods of directional antenna operation and having a station authorization permitting antenna base current readings at less frequent intervals than specified in this subparagraph, may make entries pursuant to the schedule specified in that authorization.

(v) Entries specified in § 73.68 (Sampling systems for antenna monitors) or § 73.69 (Antenna monitors), for stations using directional antennas, when the antenna sampling system or the antenna monitor is out of service.

(vi) A signed statement by the inspecting operator upon completion of the inspection required by § 73.93 showing that the inspection has been made. The statement shall include details of tests, adjustments and repairs which were accomplished in order to insure operation in accordance with the provisions of the technical operating standards for AM stations and the station authorization. If repairs could not be completed, include details of the items of equipment concerned, the manner and degree in which they are defective, and the reasons complete repairs could not be made.

(3) *FM stations.* In addition to the entries specified in subparagraph (a) (1) above:

(i) For stations using the direct method of power determination, an entry for each six month period of the results of calibration of the transmission line meter used for determining operating power as specified for FM stations in § 73.267, or for NCE-FM stations, in § 73.567 (Operating power; determination and maintenance of).

(ii) For stations transmitting stereophonic programs, an entry each calendar month of measurements of the stereophonic pilot carrier frequency, including the date performed and description of the procedure used as specified for FM stations in § 73.297 or for NCE-FM stations in § 73.596 (stereophonic broadcasting).

(iii) For stations using SCA, an entry, once each calendar month, of the measurements of each subcarrier frequency, including the date performed and description of the procedure used as required by § 73.295 for FM stations or § 73.595 for NCE-FM stations (Operation under Subsidiary Communications Authorizations).

(iv) A signed statement by the inspecting operator upon completion of the inspections specified in operator requirements for FM stations in § 73.265 or for NCE-FM stations in § 73.565, showing that the inspection has been made. The statement shall include details of tests, adjustments and repairs which were accomplished in order to insure operation in accordance with the provisions of the technical operating standards for FM stations and the station authorization. If repairs could not be completed, include details of the items of equipment concerned, the manner and degree in which they are defective, and the reasons complete repairs could not be made.

(4) *TV stations.* In addition to the entries specified in subparagraph (a) (1) above:

(i) An entry of the date and time of removal from and restoration to service of the visual modulation monitoring equipment.

(ii) An entry of the results of calibration of the transmission line meters used for determining the operating power as specified in § 73.663.

(b) As entries of these maintenance procedures are made, the operator shall sign and date them. In preparing the Maintenance Log, original data may be recorded in rough form and later transcribed into the log.

#### § 73.1840 Retention of logs.

(a) Any log required to be kept by station licensees shall be retained by them for a period of 2 years. However, logs involving communications incident to a disaster or which include communications incident to or involved in an investigation by the FCC and about which the licensee has been notified, shall be retained by the licensee until specifically authorized in writing by the FCC to destroy them. Logs incident to or involved in any claim or complaint of which the licensee has notice shall be retained by the licensee until such claim or complaint has been fully satisfied or until the

same has been barred by statute limiting the time for filing of suits upon such claims.

(b) Logs may be retained on microfilm, microfiche or other data-storage systems subject to the following conditions:

(1) Suitable viewing-reading devices shall be available to permit FCC inspection of logs pursuant to § 73.1226. Availability to FCC of station logs and records; and public inspection of program logs pursuant to § 73.1850;

(2) Reproduction of logs, stored on data-storage systems, to full-size copies, is required of licensees if requested by the FCC or the public as authorized by FCC rules. Such reproductions must be completed within 2 full work days of the time of the request.

(3) Corrections to logs shall be made:

(i) Prior to converting to a data-storage system pursuant to the requirements of § 73.1800(c) and (d), (§ 73.1800, General requirements relating to logs).

(ii) After converting to a data-storage system, by separately making such corrections and then associating with the related data-stored logs. Such corrections shall contain sufficient information to allow those reviewing the logs to identify where corrections have been made, and when and by whom the corrections were made.

(4) Copies of any log required to be filed with any application; or placed in the station's local public inspection file as part of an application; or filed with reports to the FCC must be reproduced in fullsize form when complying with these requirements.

【§ 73.184 text redcs. as (a) and new (b) added eff. 6-16-80; (a) Revised eff. 4-3-81; III (80)1】

#### § 73.1850 Public inspection of program logs.

(a) The program logs of commercial TV and non-commercial AM, FM and TV licensees shall be made available for public inspection and reproduction at a location convenient and accessible to the residents of the community to which the station is licensed. All such requests for inspection shall be subject to the procedural requirements in paragraph (b) below. Where good cause exists, the licensee may refuse to permit such inspection. (See paragraph 64, the *Public and Broadcasting Procedural Manual*.) The licensee shall remain responsible for the safekeeping of the logs when permitting inspections.

(b) The following procedural requirements apply to requests for inspection:

(1) Parties wishing to inspect shall make a prior appointment with the licensee and at that time identify themselves by name and address; identify the organization they represent, if any; and state the general purpose of the examination.

(2) Inspection of the logs shall take place at the station or at any other convenient and accessible location specified by the licensee. At its option the licensee may make an exact copy available in lieu of the original program logs.

(T.S. III (80)-1)

(3) Copies of logs shall be available provided the inspecting parties pay the reasonable cost of reproduction.

(4) An inspecting party shall have a reasonable time to examine the program logs. If examination is requested beyond a reasonable time, the licensee may condition such further inspection upon the inspecting party's willingness to either duplicate such logs at the examiner's expense, or reimburse the licensee for whatever reasonable expense is incurred if supervision is deemed necessary.

(5) No log need be made available for public inspection until 45 days have elapsed from the day covered by the log in question.

(6) In cases where the logging system used does not provide for a written program log, the licensee shall retain, subject to the above provisions, either copies of the station's pre-logs (operating schedules), which have been updated and certified correct, or recordation produced by an automatic maintenance of logging data device (*i.e.*, tapes or encoded printouts). See § 73.1810 (Program logs).

(7) Logs stored on microfilm, microfiche or other data-storage systems are subject to the requirements pertaining thereto found in § 73.1840(b).

【§ 73.1850(a) revised eff. 4-3-81; § 73.1850(b) (7) added eff. 6-16-80; III (80)-1】

#### § 73.1910 Fairness Doctrine.

The Fairness Doctrine is contained in Section 315(a) of the Communications Act of 1934, as amended, which provides that broadcasters have certain obligations to afford reasonable opportunity for the discussion of conflicting views on issues of public importance. See FCC Public Notice "Fairness Doctrine and the Public Interest Standards," 39 Fed. Reg. 26372. Copies may be obtained from the FCC upon request.

#### § 73.1920 Personal Attacks.

(a) When, during the presentation of views on a controversial issue of public importance, an attack is made upon the honesty, character, integrity or like personal qualities of an identified person or group, the licensee shall, within a reasonable time and in no event later than one week after the attack, transmit to the person or group attacked:

(1) Notification of the date, time and identification of the broadcast;

(2) A script or tape (or an accurate summary if a script or tape is not available) of the attack; and

(3) An offer of a reasonable opportunity to respond over the licensee's facilities.

(b) The provisions of paragraph (a) of this section shall not apply to broadcast material which falls within one or more of the following categories:

(1) Personal attacks on foreign groups or foreign public figures;

(2) Personal attacks occurring during uses by legally qualified candidates.

(3) Personal attacks made during broadcasts not included in paragraph (b) (2) of this section and made by legally qualified candidates, their authorized spokespersons, or those associated with them in the campaign, or other such candidates, their authorized spokespersons or persons associated with the candidates in the campaign; and

(4) Bona fide newscasts, bona fide news interviews, and on-the-spot coverage of bona fide news events, including commentary or analysis contained in the foregoing programs.

(c) The provisions of paragraph (a) of this Section shall be applicable to editorials of the licensee, except in the case of noncommercial educational stations since they are precluded from editorializing (Section 399(a), Communications Act).

#### § 73.1930 Political editorials.

(a) Where a licensee, in an editorial, (1) endorses or (2) opposes a legally qualified candidate or candidates, the licensee shall, within 24 hours after the editorial, transmit to, respectively, (i) the other qualified candidate or candidates for the same office or (ii) the candidate opposed in the editorial, (A) notification of the date and the time of the editorial, (B) a script or tape of the editorial and (C) an offer of a reasonable opportunity for the candidate or a spokesman of the candidate to respond over the licensee's facilities. Where such editorials are broadcast within 72 hours prior to the day of the election, the licensee shall comply with the provisions of this paragraph sufficiently far in advance of the broadcast to enable the candidate or candidates to have a reasonable opportunity to pre-



pare a response and to present it in a timely fashion.

(b) Inasmuch as noncommercial educational stations may not engage in editorializing or support or oppose any candidate for political office (Section 399(a), Communications Act), the provisions of paragraph (a), above, do not apply to such stations.

**§ 73.1940 Broadcasts by candidates for public office.**

(a) *Definitions.* (1) A legally qualified candidate for public office is any person who

- (i) has publicly announced his or her intention to run for nomination or office;
- (ii) is qualified under the applicable local, state or federal law to hold the office for which he or she is a candidate; and,
- (iii) has met the qualifications set forth in either subparagraphs (2), (3), or (4) below.

(2) A person seeking election to any public office including that of President or Vice President of the United States, or nomination for any public office except that of President or Vice President, by means of a primary, general or special election, shall be considered a legally qualified candidate if, in addition to meeting the criteria set forth in subparagraph (1) above, that person:

- (i) has qualified for a place on the ballot, or
- (ii) has publicly committed himself or herself to seeking election by the write-in method and is eligible under applicable law to be voted for by sticker, by writing in his or her name on the ballot or by other method, and makes a substantial showing that he or she is a bona fide candidate for nomination or office.

Persons seeking election to the office of President or Vice President of the United States shall, for the purposes of the Communications Act and the rules thereunder, be considered legally qualified candidates only in those states or territories (or the District of Columbia) in which they have met the requirements set forth in paragraph (a) (1) and (2) of this rule: *Except*, That any such person who has met the requirements set forth in paragraph (a) (1) and (2) in at least 10 states or 9 and the District of Columbia, shall be considered a legally qualified candidate for election in all states, territories and the District of Columbia for purposes of this Act.

(3) A person seeking nomination to any public office, except that of President or Vice President of the United States, by means of a convention, caucus or similar procedure, shall be considered a legally qualified candidate if, in addition to meeting the requirements set forth in paragraph (a) (1) above, that person makes a substantial showing that he or she is a bona fide candidate for such nomination: *Except*, That no person shall be considered a legally qualified candidate for nomination by the means set forth in this paragraph prior to 90 days before the beginning of the convention, caucus or similar procedure in which he or she seeks nomination.

(4) A person seeking nomination for the office of

President or Vice President of the United States shall, for the purposes of the Communications Act and the rules thereunder, be considered a legally qualified candidate only in those states or territories (or the District of Columbia) in which, in addition to meeting the requirements set forth in paragraph (a) (1) above,

- (i) he or she, or proposed delegates on his or her behalf, have qualified for the primary or Presidential preference ballot in that state, territory or the District of Columbia, or
- (ii) he or she has made a substantial showing of bona fide candidacy for such nomination in that state, territory or the District of Columbia; *Except*, That any such person meeting the requirements set forth in paragraph (a) (1) and (4) in at least ten states (or nine and the District of Columbia) shall be considered a legally qualified candidate for nomination in all states, territories and the District of Columbia for purposes of this Act.

(5) The term "substantial showing" of bona fide candidacy as used in paragraphs (a) (2), (3) and (4) above means evidence that the person claiming to be a candidate has engaged to a substantial degree in activities commonly associated with political campaigning. Such activities normally would include making campaign speeches, distributing campaign literature, issuing press releases, maintaining a campaign committee, and establishing campaign headquarters (even though the headquarters in some instances might be the residence of the candidate or his campaign manager). Not all of the listed activities are necessarily required in each case to demonstrate a substantial showing, and there may be activities not listed herein which would contribute to such a showing.

(b) *Charges for use of stations.* The charges, if any, made for the use of any broadcasting station by any person who is a legally qualified candidate for any public office in connection with his campaign for nomination for election, or election, to such office shall not exceed

(1) during the 45 days preceding the date of a primary or primary runoff election and during the 60 days preceding the date of a general or special election in which such person is a candidate, the lowest unit charge of the station for the same class and amount of time for the same period, and

(2) at any other time, the charge made for comparable use of such station by other users thereof. The rates, if any, charged all such candidates for the same office shall be uniform and shall not be rebated by any means direct or indirect. A candidate shall be charged no more than the rate the station would charge if the candidate were a commercial advertiser whose advertising was directed to promoting its business within the same area as that encompassed by the particular office for which such person is a candidate. All discount privileges otherwise offered by a station to commercial advertisers shall be available upon equal terms to all candidates for public office.

(3) This paragraph shall not apply to any station which is not licensed for commercial operation.

(c) *Discrimination between candidates.* In making time available to candidates for public office, no licensee shall make any discrimination between candidates in practices, regulations, facilities, or services for or in connection with the service rendered pursuant to this part, or make or give any preference to any candidate for public office or subject any such candidate to any prejudice or disadvantage; nor shall any licensee make any contract or other agreement which shall have the effect of permitting any legally qualified candidate for any public office to broadcast to the exclusion of other legally qualified candidates for the same public office.

(d) *Records, inspection.* Every licensee shall keep and permit public inspection of a complete record (political file) of all requests for broadcast time made by or on behalf of candidates for public office, together with an appropriate notation showing the disposition made by the licensee of such requests, and the charges made, if any, if the request is granted. When free time is provided for use by or on behalf of such candidates, a record of the free time provided shall be placed in the political file. All records required by this paragraph shall be placed in the political file as soon as possible and shall be retained for a period of two years. See §§ 73.3526 and 73.3527.

(e) *Time of request.* A request for equal opportunities must be submitted to the licensee within one week of the day on which the first prior use, giving rise to the right of equal opportunities, occurred: *Provided*, however, that where the person was not a candidate at the time of such first prior use, he shall submit his request within one week of the first subsequent use after he has become a legally qualified candidate for the office in question.

(f) *Burden of proof.* A candidate requesting equal opportunities of the licensee, or complaining of non-compliance to the Commission shall have the burden of providing that he and his opponent are legally qualified candidates for the same public office.

(g) *General requirements.*

(1) Except as otherwise indicated in (g)(2) below, no station licensee is required to permit the use of its facilities by any legally qualified candidate for public office, but if any licensee shall permit any such candidate to use its facilities, it shall afford equal opportunities to all other candidates for that office to use such facilities. Such licensee shall have no power of censorship over the material broadcast by any such candidate. Appearance by a legally qualified candidate on any (i) bona fide newscast, (ii) bona fide news interview, (iii) bona fide news documentary (if the appearance of the candidate is incidental to the presentation of the subject or subjects covered by the news documentary), or (iv) on-the-spot coverage of bona fide news events (including, but not limited to political conventions and activities incidental thereto) shall not

be deemed to be use of a broadcasting station. (Section 315(a) of the Communications Act.)

(2) Section 312(a)(7) of the Communications Act provides that the Commission may revoke any station license or construction permit for willful or repeated failure to allow reasonable access to, or to permit purchase of, reasonable amounts of time for the use of a broadcasting station by a legally qualified candidate for *Federal elective office* on behalf of his candidacy.

(h) *Political broadcasting primer.* A detailed study of these rules regarding broadcasts by candidates for Federal and non-Federal public office is available in the FCC Public Notice of July 20, 1978, "The Law of Political Broadcasting and Cablecasting." Copies may be obtained from the FCC upon request.

【§ 73.1940(d) revised eff. 4-30-80; III(80)-1】

#### § 73.2080 Equal employment opportunities.

(a) *General policy.* Equal opportunity in employment shall be afforded by all licensees or permittees of commercially or noncommercially operated AM, FM, TV or international broadcast stations (as defined in this Part) to all qualified persons, and no person shall be discriminated against in employment because of race, color, religion, national origin or sex.

(b) *Equal employment opportunity program.* Each station shall establish, maintain, and carry out, a positive continuing program of specific practices designed to assure equal opportunity in every aspect of station employment policy and practice. Under the terms of its programs, a station shall:

(1) Define the responsibility of each level of management to insure a positive application and vigorous enforcement of the policy of equal opportunity, and establish a procedure to review and control managerial and supervisory performance.

(2) Inform its employees and recognized employee organizations of the positive equal employment opportunity policy and program and enlist their cooperation.

(3) Communicate the station's equal employment opportunity policy and program and its employment needs to sources of qualified applicants without regard to race, color, religion, national origin or sex, and solicit their recruitment assistance on a continuing basis.

(4) Conduct a continuing campaign to exclude every form of prejudice or discrimination based upon race, color, religion, national origin or sex, from the station's personnel policies and practices and working conditions.

(5) Conduct continuing review of job structure and employment practices and adopt positive recruitment, training, job design, and other measures needed in order to insure genuine equality of opportunity to participate fully in all organizational units, occupations and levels of responsibility in the station.

(c) Applicants for a construction permit for a new facility, for assignment of license or construction permit or for transfer of control (other than pro forma or involuntary assignments and transfers), and applicants for renewal of license who have not previously done so, shall file with the FCC programs designed to

provide equal employment opportunities for American Indians and Alaska Natives; Asians and Pacific Islanders; Blacks, not of Hispanic Origin; Hispanics; and women, or amendments to such programs. Guidelines for the preparation of such programs are set forth in the Commission's "Report and Order, Nondiscrimination in the Employment Policies and Practices of Broadcast Licensees," 60 F.C.C. 2d 618 (1976). A program need not be filed by any station having less than five full-time employees or with respect to any minority group which is represented in such insignificant numbers in the area that a program would not be meaningful. In the latter situation, a statement of explanation should be filed.

§ 73.3500 Application and report forms.

Following are the FCC broadcast application and report forms, listed by number.

Form No.	Title
301-----	Application for Authority to Construct or make Changes in a Commercial Broadcast Station
301-A-----	Application for Authority to Operate a Broadcast Station by Remote Control or to Make Changes in a Remote Control Authorization
302-----	Application for New Commercial Broadcast Station License
303-----	Application for Renewal of License for Commercial TV Broadcast Station
303-A-----	Annual Programming Report
303-R-----	Application for Renewal of License for Commercial AM or FM Broadcast Station.
308-----	Application for Permit to Deliver Programs to Foreign Broadcast Stations.
309-----	Application for Authority to Construct or Make Changes in an International, Experimental Television, Experimental Facsimile, or Developmental Broadcast Station
310-----	Application for an International, Experimental Television, Experimental Facsimile, or a Developmental Broadcast Station License
311-----	Application for Renewal of an International, Experimental TV, Experimental Facsimile, or a Developmental Broadcast Station License
313-----	Application for Authorization in the Auxiliary Broadcast Services
313-R-----	Application for Renewal of Auxiliary Broadcast License (Short Form)
314-----	Application for Consent to Assignment of Broadcast Construction Permit or License
315-----	Application for Consent to Transfer of Control of Corporation Holding Broadcast Station Construction Permit or License

Form No.	Title
316-----	Application for Consent to Assignment of Broadcast Station Construction Permit or License or Transfer of Control of Corporation Holding Broadcast Station Construction Permit or License
318-----	Request for Subsidiary Communications Authorization
323-----	Ownership Report
323-E-----	Ownership Report for Noncommercial Educational Broadcast Station
324-----	Annual Financial Report of Broadcast Stations
324-A-----	Annual Financial Report of Broadcast Networks
330-I-----	Application for Instructional Television Fixed Station License
330-P-----	Application for Authority to Construct or Make Changes in an Instructional TV Fixed Station and for Response Station(s) and Low Power Relay Station(s)
330-R-----	Application for Renewal of Instructional TV Fixed Station and/or Response Station(s) and Low Power Relay Station(s) License
340-----	Application for Authority to Construct or Make Changes in a Noncommercial Educational Broadcast Station
341-----	Application for a New Noncommercial Educational Broadcast Station License
342-----	Application for Renewal of Noncommercial Educational Broadcast Station License
345-----	Application for Consent to Assignment of a TV or FM Translator Station Construction Permit or License
346-----	Application for Authority to Construct or Make Changes in a TV or FM Translator Station
347-----	Application for a TV or FM Broadcast Translator Station License
348-----	Application for Renewal of TV or FM Broadcast Translator Station License
349-L-----	Application for an FM Booster Station License
349-P-----	Application for Authority to Construct or Make Changes in an FM Booster Station
349-R-----	Application for Renewal of FM Booster Station License
395-----	Annual Employment Report and Instructions
701-----	Application for Extension of Construction Permit or to Replace Expired Permit.

【§ 73.3500 revised eff. 4-1-81; III(80)-1】

## FILING OF APPLICATIONS

## § 73.3511 Applications required.

(a) "Formal application" means any request for authorization where an FCC form for such request is prescribed. The prescription of an FCC form includes the requirement that the proper edition of the form is used. Formal applications on obsolete forms are subject to the provisions of § 73.3564 concerning acceptance of applications and § 73.3566 concerning defective applications.

(b) "Informal application" means all other written requests for authorization. All such applications should contain a caption clearly indicating the nature of the request submitted therein.

(c) Formal and informal applications must comply with the requirements as to signing specified herein and in § 73.3513.

(d) In cases of (1) emergency found by the FCC involving danger to life or property or due to damage to equipment, or (2) during a national emergency proclaimed by the President or declared by the Congress and during the continuance of any war in which the United States is engaged, and when such action is necessary for the national defense or security or otherwise in furtherance of the war effort, the FCC may grant construction permits and station licenses, or modifications or renewals thereof, without the filing of a formal application; but no authorization so granted shall continue in effect beyond the period of the emergency or war requiring it. Each individual request submitted under the provisions of this paragraph shall contain, as a minimum requirement, the following information:

- (1) Name and address of applicant.
- (2) Location of proposed installation or operation.
- (3) Official call letters of any valid station authorization already held by applicant and the station location.
- (4) Type of service desired (not required for renewal, nor for modification unless class of station is to be modified).
- (5) Frequency assignment, authorized transmitter power(s), and authorized class(es) of emission desired (not required for renewal); required for modification only to the extent such information may be involved).
- (6) Equipment to be used, specifying the manufacturer and type or model number (not required for renewal; required for modification only to the extent such information may be involved).
- (7) Statements to the extent necessary for the FCC to determine whether or not the granting of the desired authorization will be in accordance with the citizenship eligibility requirements of Section 310 of the Communications Act.
- (8) Statement of facts which, in the opinion of the applicant, constitute an emergency to be found by the FCC for the purpose of this Section, including the estimated duration of the emergency; or which, if during an emergency or war declared by the President or Con-

gress, necessitate such action, without formal application, for the national defense or security or in furtherance of the war effort.

## § 73.3512 Where to file; number of copies.

All applications for authorizations required by § 73.3511 shall be filed at the FCC in Washington, D.C. The number of copies required for each application is set forth in the FCC Form which is to be used in filing such application.

## § 73.3513 Signing of applications.

(a) Applications, amendments thereto, and related statements of fact required by the FCC must be signed by the following persons:

- (1) *Individual Applicant.* The applicant, if the applicant is an individual.
- (2) *Partnership.* One of the partners, if the applicant is a partnership.
- (3) *Corporation.* An officer, if the applicant is a corporation.
- (4) *Unincorporated Association.* A member who is an officer, if the applicant is an unincorporated association.
- (5) *Governmental Entity.* Such duly elected or appointed officials as may be competent to do so under the law of the applicable jurisdiction, if the applicant is an eligible governmental entity, such as a State or Territory of the United States and political subdivisions thereof, the District of Columbia, and a unit of local government, including an unincorporated municipality.

(b) Applications, amendments thereto, and related statements of fact required by the FCC may be signed by the applicant's attorney in case of the applicant's physical disability or of his absence from the United States. The attorney shall in that event separately set forth the reason why the application is not signed by the applicant. In addition, if any matter is stated on the basis of the attorney's belief only (rather than his knowledge), he shall separately set forth his reasons for believing that such statements are true.

(c) Only the original of applications, amendments, or related statements of fact, need be signed; copies may be conformed.

(d) Applications, amendments, and related statements of fact need not be submitted under oath. Willful false statements made therein, however, are punishable by fine and imprisonment, U.S. Code, Title 18, Section 1001, and by appropriate administrative sanctions, including revocation of station license pursuant to Section 312(a) (1) of the Communications Act.

## § 73.3514 Content of applications.

(a) Each application shall include all information called for by the particular form on which the application is required to be filed, unless the information called for is inapplicable, in which case this fact shall be indicated.

(b) The FCC may require an applicant to submit

such documents and written statements of fact as in its judgment may be necessary. The FCC may also, upon its own motion or upon motion of any party to a proceeding, order the applicant to amend the application so as to make it more definite and certain.

#### § 73.3516 Specification of facilities.

(a) An application for facilities in the AM, FM or TV broadcast services shall be limited to one frequency, or channel assignment, and no application will be accepted for filing if it requests alternate frequency or channel assignments.

(b) An application for facilities in the experimental and auxiliary broadcast services may request the assignment of more than one frequency if consistent with applicable rules in Part 74. Such applications must specify the frequency or frequencies requested and may not request alternate frequencies.

(c) An application for a construction permit for a new broadcast station, the facilities for which are specified in an outstanding construction permit or license, will not be accepted for filing. However, an application for a 1,000-watt TV translator station to operate on a UHF channel listed in the TV Table of Assignments (see § 73.606) on which a TV station is authorized but not operating, will be accepted for filing and may be granted. An applicant for such a translator station shall notify the permittee or licensee of such UHF TV station, in writing, of the filing of the application at the time the application is filed and shall certify to the FCC that such notice has been given.

(d) An application for facilities in the International broadcast service may be filed without a request for specific frequency, as the FCC will assign frequencies from time to time in accordance with §§ 73.702 and 73.711.

(e) An application for a construction permit for a new broadcast station or for modification of construction permit or license of a previously authorized broadcast station will not be accepted for filing if it is mutually exclusive with an application for renewal of license of an existing broadcast station unless it is tendered for filing by the end of the first day of the last full calendar month of the expiring license term.

(1) If the license renewal application is not timely filed as prescribed in § 73.3539, the deadline for filing applications mutually exclusive therewith is the 90th day after the FCC gives public notice that it has accepted the late-filed renewal application for filing.

(2) If any deadline falls on a nonbusiness day, the cutoff shall be the close of business of the first full business day thereafter.

(3) The dates when the licenses of all broadcast and broadcast auxiliary services regularly expire are listed in §§ 73.733, 73.1020 and 74.15.

#### § 73.3517 Contingent applications.

Contingent applications for new stations and for changes in facilities of existing stations are not acceptable for filing. Contingent applications will be accepted for filing under circumstances described below:

(a) Upon the filing of an application for the assignment of a license or construction permit, or for a transfer of control of a licensee or permittee, the proposed assignee or transferee may, upon payment of the filing fee prescribed in § 1.1111, file applications in its own name for authorization to make changes in the facilities to be assigned or transferred contingent upon approval and consummation of the assignment or transfer. Any application filed pursuant to this paragraph must be accompanied by a written statement from the existing licensee which specifically grants permission to the assignee or transferee to file such application. The filing fee will not be refundable should the assignment or transfer not be approved. The existing licensee or permittee may also file a contingent application in its own name, but fees in such cases are also not refundable.

(b) Whenever the FCC determines that processing of any application filed pursuant to (a), above, would be contrary to sound administrative practice or would impose an unwarranted burden on its staff and resources, the FCC may defer processing of such application until the assignment or transfer has been granted and consummated.

**[§ 73.3517 introductory paragraph revised eff. 6-16-80; III(80)-1]**

#### § 73.3518 Inconsistent or conflicting applications.

While an application is pending and undecided, no subsequent inconsistent or conflicting application may be filed by or on behalf of or for the benefit of the same applicant, successor or assignee.

#### § 73.3519 Repetitious applications.

(a) Where the FCC has denied an application for a new station or for any modification of services or facilities, or dismissed such application with prejudice, no like application involving service of the same kind for substantially the same area by substantially the same applicant, or his successor or assignee, or on behalf or for the benefit of the original parties in interest, may be filed within 12 months from the effective date of the FCC's action. However, applicants whose applications have been denied in a comparative hearing may apply immediately for another available facility.

(b) Where an appeal has been taken from the action of the FCC in denying a particular application, another application for the same class of broadcast station and for the same area, in whole or in part, filed by the same

applicant, or his successor or assignee, or on behalf of, or for the benefit of the original parties in interest, will not be considered until final disposition of such appeal.

#### § 73.3520 Multiple applications.

Where there is one application for new or additional facilities pending, no other application for new or additional facilities for a station of the same class to serve the same community may be filed by the same applicant, or successor or assignee, or on behalf of, or for the benefit of the original parties in interest. Multiple applications may not be filed simultaneously.

#### § 73.3522 Amendment of applications.

##### (a) *Predesignation amendment.*

(1) Subject to the provisions of §§ 73.3525, 73.3571, 73.3572, 73.3573 and 73.3580, and except as provided in (2) of this paragraph, any application may be amended as a matter of right prior to the adoption date of an order designating such applications for hearing, merely by filing the appropriate number of copies of the amendments in question duly executed in accordance with § 73.3513. If a petition to deny (or to designate for hearing) has been filed, the amendment shall be served on the petitioner.

(2) Subject to the provisions of §§ 73.3525, 73.3571, 73.3572, 73.3573, and 73.3580, mutually exclusive broadcast applications may be amended as a matter of right by the date specified (not less than 90 days after publication) in the FCC's public notice announcing the acceptance for filing of the last-filed mutually exclusive application. Subsequent applications prior to designation of the proceeding for hearing will be considered only upon a showing of good cause for late filing or pursuant to §§ 1.65 or 73.3514. Unauthorized or untimely amendments are subject to return by the FCC's staff without consideration.

##### (b) *Postdesignation amendment.*

(1) Except as provided in (2) of this paragraph, requests to amend an application after it has been designated for hearing will be considered only upon written petition properly served upon the parties of record in accordance with § 1.47 and, where applicable, compliance with the provisions of § 73.3525, and will be considered only upon a showing of good cause for late filing. In the case of requests to amend the engineering proposal (other than to make changes with respect to the type of equipment specified), good cause will be considered to have been shown only if, in addition to the usual good cause consideration, it is demonstrated:

(1) That the amendment is necessitated by events which the applicant could not reasonably have foreseen (e.g., notification of a new foreign station or loss

of transmitter site by condemnation); and

(ii) That the amendment does not require an enlargement of issues or the addition of new parties to the proceeding.

(2) In comparative broadcast cases (including comparative renewal proceedings), amendments relating to issues first raised in the designation order may be filed as a matter of right within 30 days after that Order is published in the Federal Register, or by a date certain to be specified in the Order.

(c) Notwithstanding the provisions of paragraph (b) of this Section, and subject to compliance with the provisions of § 73.3525, a petition for leave to amend may be granted, provided it is requested that the application as amended be removed from the hearing docket and returned to the processing line. See § 73.3571.

NOTE: When two or more broadcast applications are tendered for filing which are mutually exclusive with each other but not in conflict with any previously filed applications which have been accepted for filing, the FCC, where appropriate, will announce acceptance of the earliest tendered application and place the later filed application or applications on a subsequent public notice of acceptance for filing in order to establish a deadline for the filing of amendments as a matter of right for all applicants in the group.

#### § 73.3525 Agreements for removing application conflicts.

(a) Whenever applicants for a construction permit for a broadcast station enter into an agreement to procure the removal of a conflict between applications pending before the FCC by withdrawal or amendment of an application or by its dismissal pursuant to § 73.3568, all parties thereto shall, within 5 days after entering into the agreement, file with the FCC a joint request for approval of such agreement. The joint request shall be accompanied by a copy of the agreement and an affidavit of each party to the agreement setting forth in full all relevant facts including, but not limited to:

(1) The exact nature of any consideration (including an agreement for merger of interests) promised or paid;

(2) Information as to who initiated the negotiations;

(3) Summary of the history of the negotiations;

(4) The reasons why it is considered that the arrangement is in the public interest; and

(5) A statement fully explaining and justifying any consideration paid or promised.

(b) The affidavit of any applicant to whom consideration is paid or promised shall, in addition, include an itemized accounting of the expenses incurred in connection with preparing, filing and advocating his application, and such factual information as the parties rely upon for the requisite showing that such reported ex-

penses represent legitimate and prudent outlays. No such agreement between applicants shall become effective or be carried out unless and until the FCC has approved it, or until the time for FCC review of the agreement has expired.

(c) Whenever two or more conflicting applications for construction permits for broadcast stations pending before the FCC involve a determination of fair, efficient and equitable distribution of service pursuant to Section 307(b) of the Communications Act, and an agreement is made to procure the withdrawal (by amendment to specify a different community or by dismissal pursuant to § 73.3568) of the only application or applications seeking the same facilities for one of the communities involved, all parties thereto shall file the joint request and affidavits specified in paragraph (a) of this Section.

(1) If upon examination of the proposed agreement the FCC finds that withdrawal of one of the applications would unduly impede achievement of a fair, efficient and equitable distribution of radio service among the several States and communities, then the FCC shall order that further opportunity be afforded for other persons to apply for the facilities specified in the application or applications to be withdrawn before acting upon the pending request for approval of the agreement.

(2) Upon release of such order, any party proposing to withdraw its application shall cause to be published a notice of such proposed withdrawal at least twice a week for 2 consecutive weeks within the 3-week period immediately following release of the FCC's order, in a daily newspaper of general circulation published in the community in which it was proposed to locate the station. However, if there is no such daily newspaper published in the community, the notice shall be published as follows:

(i) If one or more weekly newspapers of general circulation are published in the community in which the station was proposed to be located, notice shall be published in such a weekly newspaper once a week for 3 consecutive weeks within the 4-week period immediately following the release of the FCC's order.

(ii) If no weekly newspaper of general circulation is published in the community in which the station was proposed to be located, notice shall be published at least twice a week for 2 consecutive weeks within the 3-week period immediately following the release of the FCC's order in the daily newspaper having the greatest general circulation in the community in which the station was proposed to be located.

(3) The notice shall state the name of the applicant; the location, frequency and power of the facilities pro-

posed in the application; the location of the station or stations proposed in the applications with which it is in conflict; the fact that the applicant proposes to withdraw the application; and the date upon which the last day of publication shall take place.

(4) Such notice shall additionally include a statement that new applications for a broadcast station on the same frequency, in the same community, with substantially the same engineering characteristics and proposing to serve substantially the same service area as the application sought to be withdrawn, timely filed pursuant to the FCC's rules, or filed, in any event, within 30 days from the last date of publication of the notice (notwithstanding any provisions normally requiring earlier filing of a competing application), will be entitled to comparative consideration with other pending mutually exclusive affidavits.

(5) Within 7 days of the last day of publication of the notice, the applicant proposing to withdraw shall file a statement in triplicate with the FCC giving the date on which the notice was published, the text of the notice and the name and location of the newspaper in which the notice was published.

(6) Where the FCC orders that further opportunity be afforded for other persons to apply for the facilities sought to be withdrawn, no application of any party to the agreement will be acted upon by the FCC less than 30 days from the last day of publication of the notice specified in (2) of this paragraph. Any applications for a broadcast station on the same frequency in the same community, with substantially the same engineering characteristics and proposing to serve substantially the same service area as the application sought to be withdrawn, filed within the 30-day period following the last date of publication of the notice (notwithstanding any provisions normally requiring earlier filing of a competing application), or otherwise timely filed, will be entitled to comparative consideration with other pending mutually exclusive applications. If the application of any party to which the new application may be in conflict has been designated for hearing, any such new application will be entitled to consolidation in the proceeding.

(d) Except where a joint request is filed pursuant to paragraph (a) of this Section, any applicant filing an amendment pursuant to § 73.3522(a) or a request for dismissal pursuant to § 73.3568(a) which would remove a conflict with another pending application; or a petition for leave to amend pursuant to § 73.3522(b) or (c) which would permit a grant of the amended application or an application previously in conflict with the amended application; or a request for dismissal pursuant to § 73.3568(c), shall file with it an affidavit as

to whether or not consideration (including an agreement for merger of interests) has been promised to or received by such applicant, directly or indirectly, in connection with the amendment, petition or request.

(e) Upon the filing of a petition for leave to amend or to dismiss an application for broadcast facilities which has been designated for hearing or upon the dismissal of such application on the FCC's own motion pursuant to § 73.3568(b), each applicant or party remaining in hearing, as to whom a conflict would be removed by the amendment or dismissal shall submit for inclusion in the record of that proceeding an affidavit stating whether or not he has directly or indirectly paid or promised consideration (including an agreement for merger of interests) in connection with the removal of such conflict.

(f) Where an affidavit filed pursuant to paragraph (d) of this Section states that consideration has been paid or promised, the affidavit shall set forth in full all relevant facts, including, but not limited to, the material listed in paragraph (a) of this Section for inclusion in affidavits.

(g) Affidavits filed pursuant to this Section shall be executed by the applicant, permittee or licensee, if an individual; a partner having personal knowledge of the facts, if a partnership; or an officer having personal knowledge of the facts, if a corporation or association.

(h) Requests and affidavits which relate to an application which has not been designated for hearing shall bear the file number of such application. If the affiant is also an applicant, the affidavit shall also bear the file number of affiant's pending application(s). Requests and affidavits which relate to an application which is designated for hearing shall bear the file number of that application and the hearing docket number and will be acted on by the presiding officer.

(i) For the purposes of this Section an application shall be deemed to be "pending" before the FCC and a party shall be considered to have the status of an "applicant" from the time an application is filed with the FCC until an order of the FCC granting or denying it is no longer subject to reconsideration by the FCC or to review by any court.

**§ 73.3526 Local public inspection file of commercial stations.**

(a) *Records to be maintained.* Every applicant for a construction permit for a new station in the commercial broadcast services shall maintain for public inspection a file containing the material described in (1) of this paragraph. Every permittee or licensee of an AM, FM or TV station in the commercial broadcast services shall maintain for public inspection a file containing the material described in (1), (2), (3),

(4), (5), (6), and (7) of this paragraph. In addition, every permittee or licensee of a TV station shall maintain for public inspection a file containing the material described in (8), (9), (11), (12), and (13) of this paragraph; every permittee or licensee of an AM or FM station shall maintain for public inspection a file containing material described in (14) of this paragraph. The material to be contained in the file is as follows:

(1) A copy of every application tendered for filing, with respect to which local public notice is required to be given under the provisions of § 73.3580 or § 73.3594; and all exhibits, letters and other documents tendered for filing as part thereof; all amendments thereto, copies of all documents incorporated therein by reference, all correspondence between the FCC and the applicant pertaining to the application after it has been tendered for filing, and copies of Initial Decisions and Final Decisions in hearing cases pertaining thereto, which according to the provisions of §§ 0.451-0.461 of the rules are open for public inspection at the offices of the FCC. Information incorporated by reference which is already in the local file need not be duplicated if the entry making the reference sufficiently identifies the information so that it may be found in the file, and if there has been no change in the document since the date of filing and the applicant, after making the reference, so states. If petitions to deny are filed against the application, and have been duly served on the applicant, a statement that such a petition has been filed shall appear in the local file together with the name and address of the party filing the petition. The file shall also contain a copy of every written citizen agreement. For purposes of this Section, a citizen agreement is a written agreement between a broadcast applicant, permittee, or licensee, and one or more citizens or citizen groups, entered for primarily noncommercial purposes. This definition includes those agreements that deal with goals or proposed practices directly or indirectly affecting station operation in the public interest, in areas such as—but not limited to—community ascertainment, programming, and employment. It excludes common commercial agreements such as advertising contracts; union, employment, and personal services contracts; network affiliation, syndication, program supply contracts and so on. However, the mere inclusion of commercial terms in a primarily noncommercial agreement—such as a provision for payment of fees for future services of the citizen-parties [see "Report and Order," Docket 19518, 57 F.C.C. 2d 494 (1976)]—would not cause the agreement to be considered commercial for purposes of this Section.

NOTE: Applications tendered for filing on or before May 13, 1965, which are subsequently designated for hearing after

May 13, 1965, with local notice being given pursuant to the provisions of § 73.3594, and material related to such applications, need not be placed in the file required to be kept by this Section. Applications tendered for filing after May 13, 1965, which contain major amendments to applications tendered for filing on or before May 13, 1965, with local notice of the amending application being given pursuant to the provisions of § 73.3580, need not be placed in the file required to be kept by this Section.

(2) A copy of every application tendered for filing by the licensee or permittee for such station which is not included in (1) of this paragraph and which involves changes in program service, which requests an extension of time in which to complete construction of a new station, or which requests consent to involuntary assignment or transfer, or to voluntary assignment or transfer not resulting in a substantial change in ownership or control and which may be applied for on FCC Form 316; and copies of all exhibits, letters, and other documents filed as part thereof, all amendments thereto, all correspondence between the FCC and the applicant pertaining to the application after it has been tendered for filing, and copies of all documents incorporated therein by reference, which according to the provisions of §§ 0.451-0.461 of the rules are open for public inspection at the offices of the FCC. Information incorporated by reference which is already in the local file need not be duplicated if the entry making the reference sufficiently identifies the information so that it may be found in the file, and there has been no change in the document since the date of filing and the licensee, after making the reference, so states. If petitions to deny are filed against the application, and have been duly served on the applicant, a statement that such a petition has been filed shall appear in the local file together with the name and address of the party filing the petition.

(3) A copy of every ownership report or supplemental ownership report filed by the licensee or permittee for such station after May 13, 1965, pursuant to the provisions of this Part; and copies of all exhibits, letters, and other documents filed as part thereof, all amendments thereto, all correspondence between the permittee or licensee and the FCC pertaining to the reports after they have been filed, and all documents incorporated therein by reference, including contracts listed in such reports in accordance with the provisions of § 73.3615(a)(4)(i) and which according to the provisions of §§ 0.451-0.461 of the rules are open for public inspection at the offices of the FCC. Information incorporated by reference which is already in the local file need not be duplicated if the entry making the reference sufficiently identifies the information so that it may be found in the file, and if there has been no change in the document since the date of

filing and the licensee or permittee, after making the reference, so states.

(4) Such records as are required to be kept by § 73.1940 concerning broadcasts by candidates for public office.

(5) A copy of every annual employment report filed by the licensee or permittee for such action pursuant to the provisions of this Part; and copies of all exhibits, letters and other documents filed as part thereof, all amendments thereto, and all correspondence between the permittee or licensee and the FCC pertaining to the reports after they have been filed and all documents incorporated therein by reference and which according to the provisions of §§ 0.451-0.461 of the rules are open for public inspection at the offices of the FCC.

(6) The Public and Broadcasting—A Procedure Manual (see FCC 74-942, 39 Fed. Reg. 32288, September 5, 1974).

(7) Letters received from members of the public as are required to be retained by § 73.1202.

(8) For TV stations, a copy of the Annual Programming Report (Form 303-A) containing programming information for a composite week selected by the FCC and the licensee's or permittee's program logs for that composite week.

(9) To be placed in the public inspection file every year, on the anniversary date on which the station's renewal application would be due for filing with the FCC, a listing of no more than ten significant problems and needs of the area served by the station during the preceding twelve months. In relation to each problem or need cited, licensees and permittees shall indicate typical and illustrative programs or program series, excluding ordinary news inserts of breaking events (the daily or ordinary news coverage of breaking newsworthy events), which were broadcast during the preceding twelve months in response to those problems and needs. Such a listing shall include the title of the program or program series, its source, type, brief description, time broadcast and duration. The third annual listing shall be placed in the station's public inspection file on the due date of the filing of the station's application for renewal of license. Additionally, upon the filing of the station's application for renewal of license, the three annual problems-programs listings shall be forwarded to the FCC as part of that application. The annual listings are not to exceed five pages, but may be supplemented at any time by additional material placed in the public inspection file and identified as a continuation of the information submitted to the FCC.

(10) Although not part of the regular file for public inspection, program logs for TV stations will be available for public inspection under the circumstances set forth in § 73.1850 and discussed in the Public and Broadcasting Procedural Manual; Revised Edition.

(11) Each licensee or permittee of a commercially operated TV station (except as provided in Note 2, below) shall place in the station's public inspection file appropriate documentation relating to its efforts to interview a representative cross-section of community leaders within its service area to ascertain community problems and needs. Such documentation shall be placed in the station's public inspection file within a reasonable time after the date of completion of each interview, but in no event later than the due date for filing the station's application for renewal of license and shall include:

- (i) the name, address, organization, and position or title of the community leader interviewed;
- (ii) the date, time and place of the interview;
- (iii) the name of the principal, management level or other employee of the station conducting the interview;
- (iv) the problems and needs discussed during the interview or, when the interviewee requests that his/her statements be held in confidence, that request shall be noted; and
- (v) for interviews conducted by non-principals or non-managers, the date of review of the interview record by a principal or management-level employee of the station.

Additionally, upon the filing of the application for renewal of license each licensee shall forward to the FCC as part of the application for renewal of license a checklist indicating the numbers of community leaders interviewed during the current license term representing the several elements found on the form; provided that, if a community lacks one of the enumerated institutions or elements, the licensee or permittee should so indicate by providing a brief explanation on its checklist. The licensee or permittee should also indicate the number of leaders, if any, it has interviewed in the other category.

(12) Each licensee or permittee of a commercially operated TV station (except as provided in Note 2, below) shall place in the station's public inspection file documentation relating to its efforts to consult with a roughly random sample of members of the general public within its city of license to ascertain community problems and needs. Such documentation shall consist of:

- (i) information relating to the total population of the station's city of license including the numbers and proportions of males and females; of minorities; of youth (17 and under); and of the elderly (65 and over);
- (ii) a narrative statement of the sources consulted and the methods followed in conducting the general public survey, including the number of people surveyed and the results thereof.

Such documentation shall be placed in the public inspection file within a reasonable time after completion

of the survey but in no event later than the date the station's application for renewal of license is filed. Upon filing its application for renewal of license, each licensee and permittee must certify that the above-noted documentation has been placed in the station's public inspection file.

**NOTE 1:** The engineering section of applications mentioned in subparagraphs (a) (1) and (2) above, and material related to the engineering section, need not be kept in the file required to be maintained by this paragraph. If such engineering section contain service contour maps submitted with that section, copies of such maps, and information (State, county, city, street address, or other identifying information) showing main studio and transmitter location shall be kept in the file.

**NOTE 2:** Subparagraphs (a) (11) and (a) (12) above shall not apply to commercial TV stations within cities of license which (1) have a population, according to the immediately preceding decennial U.S. census, of 10,000 persons or less; and (2) are located outside all Standard Metropolitan Statistical Areas (SMSA's, as defined by the Federal Bureau of the Census).

(13) A copy of those portions of exclusively contracts for programs for which a TV licensee or permittee has requested program carriage protection on a cable antenna TV system, such contract portions to be signed by both the copyright holder and the licensee or permittee, setting forth in full the provisions pertinent to the duration, nature and extent of the exclusivity terms concerning broadcast signal exhibition (whether over-the-air or by cable) to which the parties have agreed.

(14) To be placed in each commercial radio station's public inspection file every year on the anniversary date of the grant of authorization (for new licensees' first license term) and thereafter on the anniversary date on which the station's renewal application would be due for filing with the FCC, a list of five to ten issues to which the station paid particular attention with programming during the preceding year. A brief narrative should be included describing how the licensee determined the issues to be ones facing its community, and how each issue was treated (*i.e.*, a series of public service announcements, call-in programs, etc.). In addition, illustrative examples of programs responsive to each issue should be provided, including the time, date and duration of each such program.

(b) *Responsibility in case of assignment or transfer.*

(1) In cases involving applications for consent to assignment of broadcast station construction permits or licenses, with respect to which public notice is required to be given under the provisions of § 73.3580 or § 73.3594, the file mentioned in paragraph (a) of this Section shall be maintained by the assignor. If the assignment is consented to by the FCC and consummated, the assignee shall maintain the file commencing with the date on which notice of the consummation of the assignment is filed with the FCC. The file maintained by the assignee shall cover the period both

before and after the time when the notice of consummation of assignment was filed. The assignee is responsible for obtaining copies of the necessary documents from the assignor or from the FCC files.

(2) In cases involving applications for consent to transfer of control of a permittee or licensee of a broadcast station, the file mentioned in paragraph (a) of this Section shall be maintained by the permittee or licensee.

(c) *Station to which records pertain.* The file need contain only applications, ownership reports, and related material that concern the station for which the file is kept. Applicants, permittees, and licensee need not keep in the file copies of such applications, reports, and material which pertain to other stations with regard to which they may be applicants, permittees, or licensees, except to the extent that such information is reflected in the materials required to be kept under the provisions of this Section.

(d) *Location of Records.* The file shall be maintained at the main studio of the station, or any accessible place (such as a public registry for documents or an attorney's office) in the community to which the station is or is proposed to be licensed, and shall be available for public inspection at any time during regular business hours.

(e) *Period of retention.* The records specified in paragraph (a) (4) of this section shall be retained for the periods specified in § 73.1940 (2 years). The manual specified in (a) (6) of this section must be retained indefinitely. The letters specified in (a) (7) of this section must be retained for the period specified in § 73.1202 (3 years). The contract(s) specified in paragraph (a) (13) must be retained for the life of the contract(s). The records specified in paragraphs (a) (1), (2), (3), (5), (8), (9), (11) and (12) of this section shall be retained as follows:

(1) The applicant for a construction permit for a new station shall maintain such a file so long as the application is pending before the FCC or any proceeding involving that application is pending before the courts. (If the application is granted, subparagraph (2) below shall apply.)

(2) The permittee or licensee shall maintain such a file so long as an authorization to operate the station is outstanding, and shall permit public inspection of the material as long as it is retained by the licensee even though the request for inspection is made after the conclusion of the required retention period specified in this subparagraph. However, material which is voluntarily retained after the required retention time may be kept in a form and place convenient to the licensee, and shall be made available to the inquiring party, in good faith after written request, at a time and place convenient to both the party and the licensee. Applications and related material placed in the file shall be retained for a period of 7 years from the date the application is tendered for filing with the FCC with two exceptions: First, engineering material pertaining to a former mode of operation need not be retained

longer than 3 years after a station commences operation under a new or modified mode; and second, all of the material shall be retained for whatever longer period is necessary to comply with the following requirements:

(i) Material shall be retained until final FCC action on the second renewal application following the application or other material in question; and

(ii) Material having a substantial bearing on a matter which is the subject of a claim against the licensee, or relating to an FCC investigation or a complaint to the FCC of which the licensee has been advised, shall be retained until the licensee is notified in writing that the material may be discarded, or, if the matter is a private one, the claim has been satisfied or is barred by statute of limitations. Where an application or related material incorporates by reference material in earlier applications and material concerning programming and related matters (Section IV and related material), the material so referred to shall be retained as long as the application referring to it. If a written agreement is not incorporated in an application tendered for filing with the FCC, the starting date of the retention period for that agreement is the date the agreement is executed.

(f) Copies of any material required to be in the public file of any applicant for a construction permit, or permittee or licensee of any TV or radio station shall be available for machine reproduction upon request made in person, provided the requesting party shall pay the reasonable cost of reproduction. Requests for machine copies shall be fulfilled at a location specified by the applicant, permittee, or licensee, within a reasonable period of time which in no event, shall be longer than seven days unless reproduction facilities are unavailable in the applicant's, permittee's or licensee's community. The applicant, permittee or licensee is not required to honor requests made by mail, but may do so if it chooses.

【§ 73.3526(a), (a) (10), (11), (12), Note in (12), and (e) revised; (a) (14) added eff. 4-3-81; (a) (11) (v) revised eff. 7-7-80; (a) (13) added eff. 6-16-80; III (80)-1】

#### § 73.3527 Local public inspection file of noncommercial educational stations.

(a) *Records to be maintained.* Every applicant for a construction permit for a new station in the noncommercial educational broadcast services shall maintain for public inspection a file containing the material in (a) (1) and (7) of this section. Every permittee or licensee of a station in the noncommercial educational broadcast services shall maintain for public inspection a file containing the material described in (1) through (8) of this paragraph. In addition, every permittee or licensee of a TV station shall maintain for public inspection a file containing the material described in (9) of this paragraph. The material to be contained in the file is as follows:

(1) A copy of every application tendered for filing



with respect to which local public notice is required to be given under the provisions of § 73.3580 or § 73.3594; and all exhibits, letters and other documents tendered for filing, as part thereof, all amendments thereto, copies of all documents incorporated therein by reference, all correspondence between the FCC and the applicant pertaining to the application after it has been tendered for filing, and copies of Initial Decisions and Final Decisions in hearing cases pertaining thereto, which according to the provisions of §§ 0.451-0.461 of the rules are open for public inspection at the offices of the FCC. Information incorporated by reference which is already in the local file need not be duplicated if the entry making the reference sufficiently identifies the information so that it may be found in the file, and if there has been no change in the document since the date of filing and the applicant, after making the reference, so states. If petitions to deny are filed against the application, and have been duly served on the applicant, a statement that such a petition has been filed shall appear in the local file together with the name and address of the party filing the petition.

**NOTE:** Applications tendered for filing on or before May 13, 1965, which were subsequently designated for hearing after May 13, 1965, with local notice being given pursuant to the provisions of § 73.3594, and material related to such applications, need not be placed in the file required to be kept by this Section. Materials tendered for filing after May 13, 1965, which contain major amendments to applications tendered for filing on or before May 13, 1965, with local notice of the amending application being given pursuant to the provisions of § 73.3580 need not be placed in the file required to be kept by this Section.

(2) A copy of every application tendered for filing by the licensee or permittee for such station after May 13, 1965, pursuant to the provisions of this Part, which is not included in subparagraph (1) of this paragraph and which involves changes in program service, which requests an extension of time in which to complete construction of a new station, or which requests consent to involuntary assignment or transfer, or to voluntary assignment or transfer not resulting in a substantial change in ownership or control and which may

be applied for on FCC Form 316; and copies of all exhibits, letters, and other documents filed as part thereof, all amendments thereto, all correspondence between the FCC and the applicant pertaining to the application after it has been tendered for filing, and copies of all documents incorporated therein by reference, which according to the provisions of §§ 0.451-0.461 of this Chapter are open for public inspection at the offices of the FCC. Information incorporated by reference which is already in the local file need not be duplicated if the entry making the reference sufficiently identifies the information so that it may be found in the file, and there has been no change in the document since the date of filing and the licensee, after making the reference so states. If petitions to deny are filed against the application, and have been duly served on the applicant, a statement that such a petition has been filed shall appear in the local file together with the name and address of the party filing the petition.

(3) A copy of contracts listed in ownership reports filed in accordance with the provisions of § 73.3615(e) and which according to the provisions of §§ 0.451-0.461 of the rules are open for public inspection at the offices of the FCC. Information incorporated by reference which is already in the local file need not be duplicated if the entry making the reference sufficiently identifies the information so that it may be found in the file, and if there has been no change in the document since the date of filing and the licensee or permittee, after making the reference, so states.

(4) Such records as are required to be kept by § 73.1940, "Broadcasts by candidates for public office."

(5) A copy of every annual employment report filed by the licensee or permittee for such station pursuant to the provisions of this Part; and copies of all exhibits, letters and other documents filed as part thereof, all amendments thereto, all correspondence between the permittee or licensee and the FCC pertaining to the reports after they have been filed and all documents incorporated therein by reference and which, according to the provisions of §§ 0.451-0.461 of the rules, are open for public inspection at the office of the FCC.

(6) The Public and Broadcasting: Revised Edition (see FCC 74-942, 39 Fed. Reg. 32288, September 5, 1974).

(7) Problems-programs lists, as follows:

(i) Every year, on the anniversary date on which the station's renewal application would be due for filing with the FCC, each nonexempt renewal applicant shall place in its public inspection file a listing of no more than ten significant problems and needs of the area served by the station during the preceding twelve months. In relation to each problem or need cited, licensees and permittees shall indicate typical and illustrative programs or program series, excluding ordinary news inserts of breaking events, which were broadcast during the preceding twelve months in response to those problems and needs. Such a listing shall include the title of the program or program series, its source, type, brief description, time broadcast and duration. Renewal applicants shall place the third annual listing in the station's public inspection file on the due date of the filing of the station's application for renewal of license. Upon the filing of the station's application for renewal of license, the three annual problems-programs listings shall be forwarded to the FCC as part of the application for renewal of license. The annual listings are not to exceed five pages each, but may be supplemented at any time by additional material placed in the public inspection file and identified as a continuation of the information submitted to the FCC.

(ii) A non-exempt applicant for other than renewal of license shall submit to the FCC as part of its application, and place in its public inspection file, a listing of no more than ten significant problems and needs of the area proposed to be served during the initial license term to be covered by the application. In relation to each problem or need cited, such applicants shall indicate typical and illustrative programs or program series, excluding ordinary news inserts of breaking events, which are proposed for broadcast during the initial license term, in response to those problems and needs. This listing shall include the title of the proposed program or program series (if available), its source, type, a brief description, proposed time of broadcast and duration.

NOTE 1: The engineering section of the applications mentioned in subparagraphs (1) and (2) of this paragraph, and

material related to the engineering section, need not be kept in the file required to be maintained by this paragraph. If such engineering section contains service contour maps submitted with that section, copies of such maps and information (State, county, city, street address, or other identifying information) showing main studio and transmitter location shall be kept in the file.

NOTE 2: For purposes of paragraphs (a)(7) and (b) and (c) of this Section, exempt applicants, permittees or licensees include those whose existing or prospective facilities are Class D FM stations ("10-watt") under Section 73.504(b)(1) or whose programming is wholly "instructional" within the meaning of the instruction in Section IV of Forms 340 and 342 and the Report and Order in *Ascertainment of Community Problems by Noncommercial Broadcast Applicants*, 40 Fed. Reg. 12424, March 25, 1976, at para. 49.

(8) The lists of donors supporting specific programs placed in the public file under the provisions of § 73.1810(f)(2) in lieu of showing the donors on the program log.

(9) A copy of those portions of exclusivity contracts for programs for which a TV licensee or permittee has requested program carriage protection on a cable antenna TV system, such contract portions to be signed by both the copyright holder and the licensee or permittee, setting forth in full the provisions pertinent to the duration, nature and extent of the exclusivity terms concerning broadcast signal exhibition (whether over-the-air or by cable) to which the parties have agreed.

(b) *Records to be maintained by non-exempt applicants, permittees, and licensees in the noncommercial educational radio service.* In addition to the requirements set out in paragraph (a) of this Section, each radio applicant, permittee and licensee in the noncommercial educational radio service shall place in its public inspection file at such time as its renewal application would ordinarily be filed with the FCC—or in the case of applicants other than for renewal of license, at the time the application is filed—a narrative statement detailing the sources consulted and the methods followed in conducting its ascertainment of community needs and interests and summarizing principal needs and interests discovered through that survey. These items shall also be filed with the Commission as a part of the licensee's application.

(c) *Records to be maintained by applicants, permittees, and licensees in the noncommercial educational TV service.* In addition to the requirements set

out in paragraph (a) of this Section, each applicant, permittee and licensee in the noncommercial educational TV service that is required to maintain a public file under paragraph (a) of this Section shall maintain the following in its public inspection file:

(1) Appropriate documentation relating to its efforts to interview a representative cross-section of community leaders in its service area to ascertain its problems and needs. Such documentation shall be placed in the station's public inspection file within a reasonable time after the date of completion of each interview, but in no event later than the due date for filing the station's application for renewal of license, and shall include:

(i) the name, address, organization, and position or title of the community leader interviewed;

(ii) the date, time and place of the interview;

(iii) the name of the principal, management-level or other employee or volunteer conducting the interview;

(iv) the problems and needs discussed during the interview or when the interviewee requests that his/her statements be held in confidence, that request shall be noted; and

(v) for interviews conducted by non-principals or non-managers the date of review of the interview record by a principal or management-level employee.

Additionally, upon the filing of the application for renewal of license each licensee shall forward to the FCC as part of the application for renewal of license and each licensee and permittee shall place in the station's public inspection file, a checklist indicating the number of community leaders interviewed during the current license term representing elements found on the sample Community Leader Checklist (see *Ascertainment of Community Problems by Broadcast Renewal Applicants*, 41 FR 1372, 1384 (1976)); provided that, if a community lacks one of the enumerated institutions or elements, the licensee and permittee should so indicate by providing a brief explanation on its checklist. The licensee and permittee should also indicate the number of leaders, if any, they have interviewed in the other category. The same rules apply to applicants for other than renewal of license except that the checklist for an ascertainment of community leaders shall reflect information obtained within six

months prior to filing and shall be placed in the public file no later than the time the application is filed.

(2) Documentation relating to its efforts to consult with members of the public to ascertain community problems and needs. Such documentation shall consist of:

(i) Information relating to the total population of the station's community of license, including the numbers and proportions of males and females; of minorities; of youth (17 and under); and the numbers and proportions of the elderly (65 and over); and

(ii) Information regarding the public survey. An applicant for other than renewal of license shall conduct a random survey of the general public in its community of license within six months prior to filing its application, and shall file the information requested in subparagraph (A) below. Applicants for renewal of license may, at their option, conduct a random general public survey, periodic call-in programs, periodic public meetings or a combination of the latter two methods. Licensees should file information describing the methods used as set out in subparagraphs (A), (B), and (C), as a part of their renewal applications:

(A) If a random general public survey is conducted, a narrative statement, not to exceed five pages in length, of the sources consulted and the methods followed in conducting the general public survey, including the number of people surveyed and the results thereof;

(B) If a periodic call-in program is used, a narrative statement for each such program describing the numbers of persons reached, the duration of the program(s), the manner in which notice of the airing of the program was given to the public, the issues discussed and other relevant descriptive material; and

(C) If periodic public meetings are used, a narrative statement for each such meeting describing the time and place of the meeting, the approximate number of persons present and speaking, the duration of the meeting, the manner in which notice of the meeting was given to the public, the issues discussed, the names and titles of station representatives present and other relevant descriptive material.

(iii) The information requested in subparagraphs (A), (B), and (C) above shall be placed in the public



inspection file within a reasonable time after completion of the public ascertainment—or severable portion thereof, such as each call-in program or public meeting—but in no event later than the due date for filing the application, and shall be filed with the FCC as a part of the renewal application. The demographic information requested in (i) above shall be deposited in the public file no later than the time at which the information called for by (ii), or some portions thereof, is deposited.

(3) Although not part of the regular file for public inspection, program logs for TV and radio stations will be available for public inspection under the circumstances set forth in § 73.1850 and discussed in the Public and Broadcasting; Revised Edition.

(d) *Responsibility in case of assignment or transfer.*

(1) In cases involving applications for consent to assignment of broadcast station construction permits or licenses, with respect to which public notice is required to be given under the provisions of § 73.3580 or § 73.3594, the file mentioned in paragraph (a) of this Section shall be maintained by the assignor. If the assignment is consented to by the FCC, and consummated, the assignee shall maintain the file commencing with the date on which notice of the consummation of the assignment is filed with the FCC. The file maintained by the assignee shall cover the period both before and after the time when the notice of consummation of assignment was filed. The assignee is responsible for obtaining copies of the necessary documents from the assignor or from the FCC files.

(2) In cases involving applications for consent to transfer of control of a permittee or licensee of a broadcast station, the file mentioned in paragraph (a) of this Section shall be maintained by the permittee or licensee.

(e) *Station to which records pertain.* The file need contain only applications, ownership reports, and related material that concern the station for which the file is kept. Applicants, permittees and licensees need not keep in the file copies of such applications, reports and material which pertain to other stations with regard to which they may be applicants, permittees, or licensees, except to the extent that such information is reflected in the materials required to be kept under the provisions of this Section.

(f) *Location of records.* The file shall be maintained at the main studio of the station, or at any accessible place (such as a public registry for documents or an attorney's office) in the community to which the station is or is proposed to be licensed, and shall be available for public inspection at any time during regular business hours.

(g) *Period of retention.* The records specified in (a) (4) of this Section shall be retained for the periods specified in § 73.1940 (2 years). The manual specified in (a) (6) of this Section shall be retained indefinitely. The donor lists specified in paragraph (a) (8) of this Section shall be retained for two years as specified in § 73.1840. The contract(s) specified in paragraph

(a) (9) shall be retained for the life of the contract(s) between the parties to the contract(s). The records specified in paragraphs (a) (1), (2), (3), (5), (7), (b) and (c) of this Section must be retained as follows:

(1) The applicant for a construction permit for a new station shall maintain such a file so long as the proceeding in which that application was filed is pending before the FCC or any proceeding involving that application is pending before the courts. (If the application is granted, subparagraph (g) (2) below shall apply.)

(2) The permittee or licensee shall maintain a file of such records so long as an authorization to operate the station is outstanding, and shall permit public inspection of the material as long as it is retained by the licensee even though the request for inspection is made after the conclusion of the required retention period specified in this subparagraph. However, material which is voluntarily retained after the required retention time may be kept in a form and place convenient to the licensee, and shall be made available to the inquiring party, in good faith after written request, at a time and place convenient to both the party and the licensee. Applications and related material placed in the file shall be retained for a period of 7 years from the date the application is tendered for filing with the FCC, with two exceptions: First, engineering material pertaining to a former mode of operation need not be retained longer than 3 years after a station commences operation under a new or modified mode; and second, all of the material shall be retained for whatever longer period is necessary to comply with the following requirements:

(i) Material shall be retained until final FCC action on the second renewal application following the application or other material in question; and

(ii) Material having a substantial bearing on a matter which is the subject of a claim against the licensee, or relating to an FCC investigation or a complaint to the FCC of which the licensee has been advised, shall be retained until the licensee is notified in writing that the material may be discarded, or, if the matter is a private one, the claim has been satisfied or is barred by statutes of limitations. Where an application or related material incorporates by reference material in an earlier application and material concerning programming and related matters (Section IV and related material), the material so referred to shall be retained as long as the application referring to it.

(h) Copies of any material required to be in the public file of any applicant for a construction permit, or permittee or licensee of any TV or radio station shall be available for machine reproduction upon request made in person, provided the requesting party shall pay the reasonable costs of reproduction. Requests for machine copies shall be fulfilled at a location specified by the licensee, within a reasonable period of time which in no event shall be longer than seven days unless reproduction facilities are unavailable in the

applicant's, permittee's or licensee's community. The applicant, permittee or licensee is not required to honor requests made by mail but may do so if it chooses.

[§ 73.3527(a) and (g) revised; (a)(8) added; Eff. 4-30-80; (a)(9) added eff. 6-16-80; (c)(1)(v) revised eff. 7-7-80; III(80)-1]

**§ 73.3533 Application for construction permit.**

(a) Applications for new facilities or modification of existing facilities shall be made on the following forms:

(1) FCC Form 301, "Application for Authority to Construct or Make Changes in an Existing Commercial Broadcast Station."

(2) FCC Form 309, "Application for Authority to Construct or Make Changes in an Existing International, Experimental Television, Experimental Facsimile, or a Developmental Broadcast Station."

(3) FCC Form 313, "Application for Authorization in the Auxiliary Broadcast Services."

(4) FCC Form 318, "Request for Subsidiary Communications Authorization." For use by existing FM broadcast licensees applying for permit to establish or modify as SCA service.

(5) FCC Form 330-P, "Application for Authority to Construct or Make Changes in Instructional TV Fixed and/or Response Station(s) and Low Power Relay Station(s)."

(6) FCC Form 340, "Application for Authority to Construct or Make Changes in a Noncommercial Educational Broadcast Station."

(7) FCC Form 346, "Application for Authority to Construct or Make Changes in a TV or FM Broadcast Translator Station."

(8) FCC Form 349-P, "Application for Authority to Construct or Make Changes in an FM Broadcast Booster Station."

**§ 73.3534 Application for extension of construction permit or for construction permit to replace expired construction permit.**

(a) Application for extension of time within which to construct a station shall be filed on FCC Form 701, "Application for Extension of Construction Permit or to Replace Expired Construction Permit." The application shall be filed at least 30 days prior to the expiration date of the construction permit if the facts supporting such application for extension are known to the applicant in time to permit such filing. In other cases, an application will be accepted upon a showing satisfactory to the FCC of sufficient reasons for filing within less than 30 days prior to the expiration date. Such applications will be granted upon a specific and detailed showing that the failure to complete was due to causes not under the control of the grantee, or upon a specific and detailed showing of other matters sufficient to justify the extension. If approved, such extensions will be limited to periods of not more than 6 months.

(T.S. III (80)-1)

(b) Application for a construction permit to replace an expired construction permit shall be filed on FCC Form 701. Such applications must be filed within 30 days of the expiration date of the authorization sought to be replaced. If approved, such authorization shall specify a period of not more than 6 months within which construction shall be completed and application for license filed.

**§ 73.3536 Application for license to cover construction permit.**

(a) The application for station license shall be filed by the permittee prior to program tests.

(b) The following application forms shall be used:

(1) FCC Form 302, "Application for a New Commercial Broadcast Station License."

(2) FCC Form 310, "Application for an International, Experimental Television, Experimental Facsimile, or a Developmental Broadcast Station License."

(3) FCC Form 313, "Application for Authorization in the Auxiliary Broadcast Services."

(4) FCC Form 318, "Request for Subsidiary Communications Authorization."

(5) FCC Form 330-L, "Application for Instructional Television Fixed Station License."

(6) FCC Form 341, "Application for a New Noncommercial Educational Broadcast Station License."

(7) FCC Form 347, "Application for a TV or FM Broadcast Translator Station License."

(8) FCC Form 349-L, "Application for FM Broadcast Booster Station License."

**§ 73.3537 Application for license to use former main antenna as an auxiliary.**

A licensee may apply on FCC Form 302 (FCC Form 341 for noncommercial educational licensees) for authority to use a formerly licensed main antenna system as an auxiliary antenna.

**§ 73.3538 Application to make changes in an existing station.**

Where prior authority from the FCC is required to make changes in an existing station the following procedures shall be used to request that authority:

(a) An application for a construction permit using the forms specified in § 73.3533 must be filed for authority to make the following changes:

(1) Any change involving frequency, power or location of the station.

(2) A change in the hours of operation of an AM station, where the hours of operation are specified on the station license.

(3) The installation of a transmitter which has not been type approved by the FCC for use by licensed broadcast stations.

(4) Any change in the location, height, or directional radiating characteristics of the antenna or antenna system.

(5) To move the main studio location of an AM station to a location outside the principal community, or to move the studio from one location outside the prin-

principal community to another such location (other than to the authorized transmitter site). See § 73.1125.

(6) To move the main studio of an FM station to a location outside the principal community or to move the studio from one location outside the principal community or to move the studio from one location outside the principal community to another such location (other than to the studio of commonly-owned AM station licensed to the same community). See § 73.1125.

(7) To move the main studio of a TV station to a location outside the principal community, or to move the studio from one location outside the principal community to another such location. See § 73.1125.

(b) An informal application filed in accordance with § 73.3511 is to be used to obtain authority to make the following changes in the station authorization:

(1) To specify a new AM station directional antenna field monitoring point as a substitute for one that is not longer suitable or available, such as due to construction. The request is to include sufficient measurement data taken at the new monitoring point to establish its reliability in comparison with data taken at the old monitoring point on the same radial, the routing directions to the new point, a location photograph, and such other information as the FCC may request.

(2) To modify or discontinue the obstruction marking or lighting of the antenna supporting structure where that specified on the station authorization either differs from that specified in FCC Rules, Part 17, or is not appropriate for other reasons.

**§ 73.3539 Application for renewal of license.**

(a) Unless otherwise directed by the FCC, an application for renewal of license shall be filed not later than the first day of the fourth full calendar month prior to the expiration date of the license sought to be renewed, except that applications for renewal of license of an experimental or developmental broadcast station shall be filed not later than the first day of the second full calendar month prior to the expiration date of the license sought to be renewed. If any deadline prescribed in this paragraph falls on a non-business day, the cutoff shall be the close of business of the first full business day thereafter.

(b) No application for renewal of license of any broadcast station will be considered unless there is on file with the FCC the information, if any, currently required by §§ 73.3611-73.3615, inclusive, for the particular class of station. The renewal application shall include a reference by date and file number of such information on file.

(c) Whenever the FCC regards an application for a renewal of license as essential to the proper conduct of a hearing or investigation, and specifically directs that it be filed by a date certain, such application shall be filed within the time thus specified. If the licensee fails to file such application within the prescribed time, the hearing or investigation shall proceed as if such renewal application had been received.

(d) The following application forms shall be used:

(1) FCC Form 303, "Application for Renewal of License for Commercial TV Broadcast Station."

(2) FCC Form 303-R, "Application for Renewal of License for Commercial AM or FM Radio Broadcast Station."

(3) FCC Form 311, "Application for Renewal of an International, Experimental Television, Experimental Facsimile, or a Developmental Broadcast Station License."

(4) FCC Form 313. "Application for Authorization applications for renewal of licenses of auxiliary broadcast stations only when there has been a change in the information contained in the initial application for license.

(5) FCC Form 313-R, "Application for Renewal of Auxiliary Broadcast License (Short Form)." To be used for applications for renewal of license of auxiliary broadcast stations where there has been no change in the information contained in the initial application for license.

(6) FCC Form 330-R, "Application for Renewal of Instructional TV Fixed Station and/or Response Station(s) and Low Power Relay Station(s) License."

(7) FCC Form 342, "Application for Renewal of a Noncommercial Educational Broadcast Station License."

(8) FCC Form 348, "Application for Renewal of TV or FM Broadcast Translator Station License."

(9) FCC Form 349-R, "Application for Renewal of FM Broadcast Booster Station License."

**§ 73.3540 Application for voluntary assignment or transfer of control.**

(a) Prior consent must be obtained for a voluntary assignment or transfer of control.

(b) Application should be filed with the FCC at least 45 days prior to the contemplated effective date of assignment or transfer of control.

(c) Application for consent to the assignment of construction permit or license must be filed on FCC Form 314 "Assignment of license," FCC Form 316 "Short form" (see paragraph (e) below) or FCC Form 345 "Assignment of Translator Stations."

(1) FCC Form 345 is to be used only for the assignment of construction permits or licenses of translator stations and associated auxiliaries, such as translator microwave relay stations, or UHF translator signal boosters where no other type of broadcast station is involved.

(d) Application for consent to the transfer of control of a corporation holding a construction permit or license must be filed on FCC Form 315 "Transfer of Control" or FCC Form 316 "Short form" (see paragraph (e) below).

(1) FCC Form 315 is to be used for transfer of control of translator stations such as described in (c) (1) above.

(e) The following assignment or transfer applica-

tions may be filed on FCC "Short form" 316:

(1) Assignment from an individual or individuals (including partnerships) to a corporation owned and controlled by such individuals or partnerships without any substantial change in their relative interests;

(2) Assignment from a corporation to its individual stockholders without effecting any substantial change in the disposition of their interests;

(3) Assignment or transfer by which certain stockholders retire and the interest transferred is not a controlling one;

(4) Corporate reorganization which involves no substantial change in the beneficial ownership of the corporation;

(5) Assignment or transfer from a corporation to a wholly owned subsidiary thereof or vice versa, or where there is an assignment from a corporation to a corporation owned or controlled by the assignor stockholders without substantial change in their interests; or

(6) Assignment of less than a controlling interests in a partnership.

**§ 73.3541 Application for involuntary assignment of license or transfer of control.**

(a) The FCC shall be notified in writing promptly of the death or legal disability of an individual permittee or licensee, a member of a partnership, or a person directly or indirectly in control of a corporation which is a permittee or licensee.

(b) Within 30 days after the occurrence of such death or legal disability, an application on FCC Form 316 shall be filed requesting consent to involuntary assignment of such permit or license or for involuntary transfer of control of such corporation to a person or entity legally qualified to succeed to the foregoing interests under the laws of the place having jurisdiction over the estate involved.

**§ 73.3542 Application for temporary authorization.**

(a) The circumstances in which temporary authority will be granted are set out in the pertinent Subparts of Part 2, 73 and 74.

(b) Temporary authority may be granted to a licensee or permittee of a broadcast station to operate such station for a period not to exceed 90 days upon request therefor. Any such request should be filed with the FCC at least 10 days prior to the date of the proposed operation and should be accompanied by a statement giving full particulars as to the purpose for which the request is made. Any temporary authority issued under this Section may be cancelled by the FCC without further notice or right to hearing. Written notification to the FCC in Washington, D.C. or the Engineer in Charge of the station's radio district may be given in lieu of request for temporary authorization if specifically allowed by a rule in Part 73.

(c) No request by an AM station for temporary authority to extend its hours of operation beyond those authorized by its regular authorization will be accepted or granted by the FCC.

(d) An information application is to be used, signed in accordance with the provisions of § 73.3513, "Signing of applications," and providing the information required in paragraph (d) of § 73.3511 "Applications required."

(e) Request for temporary authorization necessitated by equipment damage or failure may be made without regard to the procedural requirements of this Section. Also, in extraordinary circumstances requiring emergency operation to serve the public interest, the FCC may grant a temporary authorization accompanied by a statement of its reason therefor. Such grant would permit emergency operation for a period of not more than 90 days. If like finding can be made, the FCC may extend the temporary authorization for one additional period not to exceed 90 days.

**§ 73.3543 Application for renewal or modification of special service authorization.**

(a) No new special service authorization will be issued. However, consideration will be given to renewal or modification of a special service authorization which was outstanding on February 3, 1958, providing a satisfactory showing has been made in regard to the following, among others:

(1) That the requested operation may not be granted on a regular basis under the existing rules governing the operation of AM stations;

(2) That experimental operation is not involved as provided for by § 73.1510 (Experimental authorizations); and

(3) That public interest, convenience and necessity will be served by the authorization requested.

**§ 73.3544 Application to obtain a modified station license.**

Where prior authority from the FCC is not required to make certain changes in the station authorization or facilities, but a modified station license must be obtained, the following procedures shall be used to obtain modification of the station license:

(a) An application for a station license using the forms specified in § 73.3536 shall be used to cover the following changes:

(1) A change in the type of FM or TV transmitting antenna where prior authority from the FCC is not required to make such a change. See §§ 73.257, 73.557 or 73.639.

(2) A change in the output power of FM or TV aural or visual transmitters to accommodate a change in the antenna type or transmission line.

(b) An informal application filed according to the procedure specified in § 73.3511 (b) shall be used to cover the following changes:

(1) [Reserved]

(2) A correction of the routing instructions and description of an AM station directional antenna system field monitoring point, when the point itself is not changed.

(3) A change in the type of AM station directional

antenna monitor. See § 73.69.

(4) A change in the location of the station main studio when prior authority to move the main studio location is not required.

(5) The location of a remote control point of an AM or FM station when prior authority to operate by remote control is not required.

(c) A change in the name of the licensee where no change in ownership or control is involved may be accomplished by written notification by the licensee to the Commission.

**§ 73.3545 Application for permit to deliver programs to foreign stations.**

Application under Section 325 (b) of the Communications Act for authority to locate, use, or maintain a broadcast studio in connection with a foreign station consistently received in the United States, should be made on FCC Form 308, "Application for Permit to Deliver Programs to Foreign Broadcast Stations." An informal application may be used by applicants holding an AM, FM or TV broadcast station license or construction permit. Informal applications must, however, contain a description of the nature and character of the programming proposed, together with other information requested on Page 4 of Form 308.

**§ 73.3547 Requests for temporary permission to use lesser grade operators or a pro-tem chief operator.**

(a) For stations which elect to have First-class Radiotelephone Licensed operators on duty in charge of the transmitting system during all periods of operation and, due to circumstances beyond the licensee's control, such operators are unavailable to maintain the regular schedule of operation, a request for temporary permission to employ lesser grade operators may be submitted to the Engineer in Charge of the radio district in which the station is located.

(b) For stations which are required to have a designated chief operator and that operator becomes incapacitated or temporarily unavailable and a designated assistant chief operator is not employed, a request for permission to appoint a First-class operator available on call as the pro-tem chief operator must be submitted to the Engineer in Charge of the radio district in which the station is located.

(c) Temporary permission to operate with either lesser grade operators or with a pro-tem chief operator may be granted for a period of up to 60 days upon a showing of need. The Engineer in Charge may terminate the permission in the absence of adequate efforts to obtain qualified replacement operators or for other good reasons in the judgment of the Engineer in Charge.

(d) Requests for temporary authority are to be made in letter form, signed by the licensee, and must include the following:

(1) The name of the licensee and call letters of the station.

(2) When lesser grade operators are to be employed, a showing that at least one First-class radiotelephone operator is employed and responsible for all technical adjustments and maintenance.

(3) When a pro-tem chief operator is to be employed, a showing that at least one First-class radiotelephone operator will be available on an on-call basis to perform all technical adjustments and maintenance, and who will assume the responsibilities of the chief operator.

(4) Any request for an extension of the original permission, when the employment of a replacement chief operator is required, must include a showing of the continuing efforts made to obtain qualified employees, including the sources of contact and dates of contacts of all known sources of broadcast operators. If a replacement chief operator is rejected for employment, a statement giving the reason for rejection must be included.

**§ 73.3548 Applications to operator by remote control.**

(a) An applicant for a new AM, FM or TV station or an applicant for a construction permit to make changes in an existing station may include a request for authority to operate by remote control on FCC Form 301 (FCC Form 340 for noncommercial educational stations).

(b) The licensee of an existing AM station using a non-directional antenna or an FM station may commence operation by remote control without prior authorization from the FCC. Written notice giving the address and description of the remote control point(s) being used must be sent to the FCC in Washington, D.C., within 3 days after commencing remote control operation. When the remote control point is at a location other than that of either the authorized studio or transmitter facilities, the licensee must also send a notice to the Engineer in Charge of the radio district in which the station is located. This additional notice is to include the full address, location and telephone number of the remote control point.

(c) The licensee of an existing AM station using a directional antenna system or a TV station must request authority to operate by remote control or to make changes in an existing remote control location on FCC Form 301-A, "Application for Authority to Operate a Broadcast Station by Remote Control or Make Changes in a Remote Control Authorization." See §§ 73.66 (AM) or 73.677 (TV), "Remote Control Authorizations."

**§ 73.3549 Requests for extension of authority to operate without required monitors, indicating instruments, and EBS Attention Signal devices.**

Requests for extension of authority to operate without required monitors, transmission system indicating instruments, or devices for off-the-air monitoring and generating of the EBS Attention Signal should be made to the Engineer in Charge of the radio district in which the station is operating. Such requests must contain information as to when and what steps were

taken to repair or replace the defective equipment and a brief description of the alternative procedures being used while the defective equipment is out of service.

§ 73.3550 Requests for new or modified call sign assignments.

(a) Requests for new or modified call sign assignments for broadcast stations shall be made by letter to the Secretary, FCC, Washington, D.C. 20554. An original and one copy of the letter shall be submitted and shall be accompanied by the filing fee, is required specified in § 1.1111. Incomplete or otherwise defective filings will be returned by the FCC, and any filing fee submitted in connection therewith will be forfeited 45 days from the date the application is returned should the applicant fail to submit an acceptable call sign application for the same station within that period.

(b) No request for a new call sign assignment will be accepted from an applicant for a new station until the FCC has granted a construction permit.

(c) An applicant for transfer or assignment of an outstanding construction permit or license may, in accordance with this Section, request a new call sign assignment at the time the application for transfer or assignment is filed, or at any time thereafter. In the absence of written consent of the proposed transferor or assignor, no change in call sign assignment will be made effective until such application is granted by the FCC and the transaction consummated.

(d) Where an application is granted by the FCC for transfer or assignment of the construction permit or license of a station whose existing call sign conforms to that of a commonly owned station not part of the transaction, the assignee shall, within 30 days after consummation, request a different call sign in accordance with the provisions of this Section. Should a suitable application not be received within that period of time, the FCC will, on its own motion, select an appropriate call sign and effect the change in call sign assignment.

(e) Each request submitted under the provisions of paragraphs (a), (b), (c) and (d) above shall include the following:

(1) A statement that a copy of the request has been served upon all AM, FM and TV broadcast stations licensed to operate, or whose construction has been authorized, in communities wholly or partially within a 35-mile radius of the main post office of the applicant's community of license, and a list of the call signs and location of all stations upon which copies of the request have been served.

(2) As many as five call sign choices, listed in descending order of preference, may be included in a single request.

(f) No request for call signs will be acted upon by the FCC earlier than 30 days following issuance of public notice of the receipt of such request. Permittees or licensees seeking new or modified call signs are cautioned to take no action in reliance on securing the desired call sign until notified by the FCC that the request has been granted.

(g) Objections to the assignment of the requested call signs may be filed within the 30-day period following issuance of public notice of the receipt of such request. Copies of objections shall be served on the party making the request. Objections filed after the 30-day period will be considered only if, in the judgment of the FCC, good cause has been shown for failure to file within the time specified. A reply may be filed within 10 days of the filing of the objection, a copy of which shall be served on the objector. No further pleadings will be entertained, unless specifically authorized by the FCC.

(h) Call signs beginning with the letter "K" will not be assigned to stations located east of the Mississippi River, nor will call signs beginning with the letter "W" be assigned to stations located west of the Mississippi River, except where necessary to conform the call sign assignments of stations which otherwise qualify for common call signs.

(i) Only four-letter call signs (plus FM or TV suffixes, if used) will be assigned. However, subject to the other provisions of this Section, a new or acquired station may be conformed to a commonly owned station holding a three-letter call sign assignment (plus FM or TV suffixes, if used.)

(j) Subject to the foregoing limitations and provided the call sign is available for assignment, licensees and permittees are eligible to request call signs of their choice if the combination is in good taste and is sufficiently dissimilar phonetically and rhythmically from existing call signs of station in the same service area so that there will be no significant likelihood of public confusion.

(k) Call signs are normally assigned on a "first-come-first served" basis. Receipt by the FCC of a request for an available call sign blocks the acceptance of competing requests until the first received request is processed to completion. In the case of call signs being relinquished or deleted, the FCC will announce the availability thereof by public notice. If competing requests are filed within 15 days the assignment (if otherwise gratable) will be made to the station having the longest continuous record of broadcasting operation under substantially unchanged ownership and control. However, involuntary and *pro forma* assignments and transfers will not be taken into account in determining priority.

(1) Stations in different broadcast services which are under common control and assigned to the same or adjoining communities may request that their call signs be conformed by the assignment of the same basic call sign. For the purposes of this paragraph, 50% or greater common ownership shall constitute a *prima facie* showing of common control.

(m) The procedural provisions of this Section shall not apply to International broadcast stations, to stations in the experimental, auxiliary and special broadcast services, nor to FM or TV stations seeking to modify an existing call sign only to the extent of adding or deleting an "-FM" or "-TV" suffix. The latter additions and deletions may be requested accompanied by

the necessary filing fee, if applicable.

(n) Failure by the permittee of a new station to request the assignment of a specific call sign and to complete the action required by this Section will result in the assignment of identification by the FCC on its own motion.

(o) In the absence of an objection, or pending transfer or assignment of a license or construction permit, a change in call sign assignment will be made effective on the date specified in the related public notice. Postponement of the effective date will be granted only in response to a timely request and for only the most compelling reasons.

(p) Four-letter combinations commencing with "W" or "K" which are assigned as call signs to ships or to other radio services are not available for assignment to broadcast stations, with or without the suffix "-FM" or "-TV".

(q) A call sign previously assigned to a station in the broadcast services will not be reassigned to another broadcast station in the same community within 180 days from its relinquishment, except to the same licensee or permittee or to its successor-in-interest.

(r) Users of nonlicensed, low-power devices operating under Part 15 of the FCC rules may use whatever identification is currently desired, so long as propriety is observed and no confusion results with a station for which the FCC issues a license.

(s) A call sign whose suffix forms the initials in their usual sequence of the President of the United States, of a living former President, or of the United States of America or any department or agency thereof, is unavailable for assignment to a station in the broadcast services in the absence of suitable clearance.

(t) A call sign may not be reserved. Where a licensee or permittee declines to indicate a specific desired effective date for the requested change of call sign assignment, the FCC will effect the change in assignment on a date at least 21 days after approval thereof.

#### APPLICATION PROCESSING

##### § 73.3561 Staff consideration of applications requiring Commission action.

Upon acceptance of an application, the complete file is reviewed by the staff and, except where the application is acted upon by the staff pursuant to delegation of authority, a report containing the recommendations of the staff and any other documents required is prepared and placed on the Commission's agenda.

##### § 73.3562 Staff consideration of applications not requiring action by the Commission.

Those applications which do not require action by the Commission but which, pursuant to the delegations of authority set forth in Subpart B of Part O, may be acted upon by the Chief, Broadcast Bureau, are forwarded to the Broadcast Bureau for necessary action. If the application is granted, the License Division issues the formal authorization. In any case where it is recommended that the application be set for hearing, where a novel question of policy is presented, or where the Chief, Broadcast Bureau desires instructions from the Commission, the matter is placed on the Commission agenda.

##### § 73.3564 Acceptance of applications.

(a) Applications tendered for filing are dated upon receipt and then forwarded to the Broadcast Bureau, where an administrative examination is made to ascertain whether the applications are complete. Applications found to be complete or substantially complete are accepted for filing and are given a file number. In case of minor defects as to completeness, the applicant will be required to supply the missing information. Applications which are not substantially complete will be returned to the applicant.

(b) Acceptance of an application for filing merely means that it has been the subject of a preliminary review by the FCC's administrative staff as to com-

pleteness. Such acceptance will not preclude the subsequent dismissal of the application if it is found to be patently not in accordance with the FCC's rules.

(c) At regular intervals the FCC will issue a Public Notice listing all applications and major amendments thereto which have been accepted for filing. Pursuant to §§ 73.3571(c), 73.3572(c), and 73.3573(d), such notice shall be published in the Federal Register and shall establish a cut-off date (no less than 30 days from the date of publication) for the filing of mutually exclusive applications and petitions to deny. However, no application will be accepted for filing until a statement establishing compliance with the local notice requirements of § 73.3580 has been received by the FCC.

#### § 73.3566 Defective applications.

(a) Applications which are determined to be patently not in accordance with the FCC rules, regulations, or other requirements, unless accompanied by an appropriate request for waiver, will be considered defective and will not be accepted for filing or if inadvertently accepted for filing will be dismissed. Requests for waiver shall show the nature of the waiver or exception desired and shall set forth the reasons in support thereof.

(b) If an applicant is requested by the FCC to file any additional documents or information not included in the prescribed application form, a failure to comply with such request will be deemed to render the application defective, and such application will be dismissed.

#### § 73.3568 Dismissal of applications.

(a) Subject to the provisions of § 73.3525 (Agreements for removing application conflicts), any application may, upon request of the applicant, be dismissed without prejudice as a matter of right prior to the designation of such application for hearing. An applicant's request for the return of an application that has been accepted for filing will be regarded as a request for dismissal.

(b) Failure to prosecute an application, or failure to respond to official correspondence or request for additional information, will be cause for dismissal. Subject to the provisions of § 73.3525, such dismissal will be without prejudice where an application has not yet been designated for hearing but may be made with prejudice after designation for hearing.

(c) Requests to dismiss an application without prejudice after it has been designated for hearing will be considered only upon written petition properly served upon all parties of record and, where applicable, compliance with the provisions of § 73.3525. Such requests shall be granted only upon a showing that the request is based on circumstances wholly beyond the applicant's control which preclude further prosecution of his application.

#### § 73.3569 [Reserved]

【§ 73.3569 removed and marked "Reserved" eff. 8-1-80; III(80)-1】

#### § 73.3570 AM broadcast station applications involving other North American countries.

(a) Applications involving conflicts with the U.S./Mexican Agreement or with countries which have ratified NARBA. Except for applications falling within the provisions of paragraph (b) of this Section, no application will be accepted for filing if authorization of the facilities requested would be inconsistent with the provisions of the North American Regional Broadcasting Agreement (NARBA), or the Agreement Between the United States of America and the United Mexican States Concerning Radio Broadcasting in the Standard [AM] Broadcast Band (the U.S./Mexican Agreement). Any such application which has heretofore been accepted for filing or which is inadvertently accepted for filing will be dismissed.

(b) Applications involving conflicts only with respect to Haiti or countries which have signed but not ratified NARBA. Applications (regardless of when they were or may be filed) for facilities which would be incon-

sistent with NARBA only with respect to a country which has signed but not completed formal ratification of that agreement, or which would cause objectionable interference (under the standards set forth in NARBA) to a duly notified Haitian station, will be retained in the pending file without further action, except where they conflict with other applications which do not involve international problems. In the latter situation, the various conflicting applications will be designated for hearing in a consolidated proceeding. Where an application inconsistent with international relationships as specified in this paragraph is designated for hearing, the following procedures will govern:

(1) Where all applications involved in a consolidated hearing proceedings are inconsistent with international relationships as specified in this paragraph, all will be removed from hearing status and returned to the pending file.

(2) Where one or more but not all of the applications involved in a consolidated hearing proceeding are inconsistent with international relationships as specified in this paragraph, the hearing issues will include an issue as to such inconsistency. If necessary, the hearing issues will be enlarged, and if closed, the hearing record will be reopened to include this matter. The initial decision and the final decision will contain findings and conclusions as to this issue, but neither the presiding officer nor the FCC will, in their decisions, take into account such issues in determining whether the public interest would be served by grant of any of the various applications. In the decision in such a proceeding, applications will be:

(i) Granted, where they are not inconsistent with international relationships and the public interest will be served thereby.

(ii) Denied, if denial is required because of grant of other applications or for other reasons independent of the consistency issue; or

(iii) Placed in the pending file without removal from hearing status if grant of the application would be in

the public interest except for inconsistency with international relationships as specified in this paragraph, or where denial would be only on the basis of comparative consideration with an application which is being placed in the pending file because of such inconsistency.

(3) Where an application inconsistent with international relationships is designated for hearing because of conflict with another application not involving such inconsistency, and the conflict is later removed by amendment or dismissal of the latter application, the inconsistent application will be removed from hearing status and returned to the pending file.

NOTE 1: Upon ratification by Canada, Cuba and United States, NARBA entered into force April 19, 1960; the Dominican Republic deposited its ratification on May 4, 1961, and the Bahama Islands on October 9, 1962. When the other signatory power, Jamaica, ratifies the agreement, or when Haiti (not a signatory power) formally adheres thereto, the FCC upon notification thereof will give public notice of such occurrence. Applications involving conflicts with respect to such country will thereupon automatically be removed from the provisions of paragraph (b) of this Section and will fall within paragraph (a) of this Section.

If Jamaica completes formal ratification of NARBA, and at that time Haiti has not yet formalized its adherence to the agreement, the FCC will give consideration to whether applications involving conflicts with Haitian stations should continue to be handled as provided in paragraph (b) of this Section, or whether, in view of the then pertaining relationship with Haiti in this area, they should be handled as provided in paragraph (a) of this Section, or should be handled otherwise. Applicants for facilities involving conflicts with duly notified Haitian stations should take note of these possibilities.

NOTE 2: For the purpose of this Section, an application is not regarded as inconsistent with the provisions of NARBA if it is for Class IV facilities operating with more than 250 watts but no more than 1 kw power, to be located in those portions of the United States where such facilities are not precluded under Note 1 to § 73.21(c), and where such facilities would not cause objectionable interference (under the standards set forth in NARBA) to a duly notified station in any other NARBA signatory country or in Haiti.

NOTE 3: As to the use in hearings of groundwater field strength measurements involving foreign countries, see the note to § 73.183(b).

(c) *Amendment of application designated for hearing.* When, in the case of any application which has

been designated for hearing on issues not including an issue as to consistency with international relationships and as to which no final decision has been rendered, action under this Section becomes appropriate because of inconsistency with international relationships, the applicant involved shall, notwithstanding the provisions of § 73.3522 and § 73.2571, be permitted to amend its application to achieve consistency with such relationships. In such cases the provisions of § 73.3605(c) will apply.

(d) *Application not involving conflict with NARBA or U.S./Mexican Agreement.* As a matter of general practice, applications which are consistent with NARBA and the U.S./Mexican Agreement and which would not involve objectionable interference to a duly notified Haitian assignment, will be considered and acted upon by the FCC in accordance with its established procedure. In particular cases, involving applications of this character but in which special international considerations require that a different procedure be followed, the applicant involved will be formally advised to this effect.

#### § 73.3571 Processing of AM broadcast station applications.

(a) Applications for AM broadcast facilities are divided into two groups.

(1) In the first group are applications for new stations or for major changes in the facilities of authorized stations. A major change is any increase in power, or any change in frequency, hours of operation, or station location. However, the FCC may, within 15 days after the acceptance for filing of any other application for modification of facilities, advise the applicant that such application is considered to be one for a major change and therefore is subject to the provisions of §§ 73.3580 and 1.1111 pertaining to major changes.

(2) The second group consists of applications for licenses and all other changes in the facilities of authorized stations.

(b) If an application is amended so as to effect a

major change as defined in paragraph (a)(1) of this Section or so as to result in a transfer of control or assignment which, in the case of an authorized station, would require the filing of an application therefor on FCC Form 314 or 315 (see § 73.3540), § 73.3580 will apply to such amended application.

(c) Applications for new stations or for major changes in the facilities of authorized stations are processed as nearly as possible in the order in which they are filed. Such applications will be placed in the processing line in numerical sequence, and are drawn by the staff for study, the lowest file number first. Thus, the file number determines the order in which the staff's work is begun on a particular application or group of conflicting applications. In order that those applications which are entitled to be grouped for processing may be fixed prior to the time processing of the earliest filed application is begun, the FCC will periodically publish in the Federal Register a Public Notice listing applications which have been accepted for filing and announcing a date (not less than 30 days after publication) on which the listed applications will be considered available and ready for processing and by which all mutually exclusive applications and petitions to deny the listed applications must be filed.

(d) [Reserved]

(e) The processing and consideration of applications for new stations or major changes on those frequencies specified in § 73.3569 are subject to certain restrictions, as set forth therein.

(f) Applications other than those for new stations or for major changes in the facilities of authorized stations are not placed on the processing line but are processed as nearly as possible in the order in which they are filed.

(g) Applications for change of license to change hours of operation of a Class IV station, to decrease hours of operation of any other class of station, or to change station location involving no change in transmitter site will be considered without reference to the processing line.

(h) If, upon examination, the FCC finds that the

public interest, convenience and necessity will be served by the granting of an application, the same will be granted. If the FCC is unable to make such a finding and it appears that a hearing may be required, the procedure set forth in § 73.3593 will be followed.

(i) When an application which has been designated for hearing has been removed from the hearing docket, the application will be returned to its proper position (as determined by the file number) in the processing line. Whether or not a new file number will be assigned will be determined pursuant to paragraph (j), below, after the application has been removed from the hearing docket.

(j) (1) A new file number will be assigned to an application for a new station, or for major changes in the facilities of an authorized station, when it is amended to change frequency, to increase power, to increase hours of operation, or to change station location. Any other amendment modifying the engineering proposal, except an amendment respecting the type of equipment specified, will also result in the assignment of a new file number unless such amendment is accompanied by a complete engineering study showing that the amendment would not involve new or increased interference problems with existing stations or other applications pending at the time the amendment is filed. If, after submission and acceptance of such an engineering amendment, subsequent examination indicates new or increased interference problems with either existing stations or other applications pending at the time the amendment was received at the FCC, the application will then be assigned a new file number and placed in the processing line according to the numerical sequence of the new file number.

(2) A new file number will be assigned where an application for a new station is amended (whether by a single amendment or by a series of amendments) so as to result in an assignment or transfer of control which, in the case of an authorized station, would require the filing of an application on FCC Form 314, 315 or 345 (see § 37.3540), and § 73.3580 will apply to such amended application.

(3) An application for changes in the facilities of an existing station will continue to carry the same file number even though (pursuant to FCC approval) an assignment of license or transfer of control of said licensee or permittee has taken place if, upon consummation, the application is amended to reflect the new ownership.

(k) When an application is reached for processing, and it is necessary to address a letter to the applicant asking further information, the application will not be processed until the information requested is received, and the application will be placed in the pending file to await the applicant's response.

(l) When an application is placed in the pending file, the applicant will be notified of the reason for such action.

#### § 73.3572 Processing TV broadcast and TV translator station applications.

(a) Applications for TV stations are divided into two groups.

(1) In the first group are applications for new stations or major changes in the facilities of authorized stations. A major change for TV stations authorized under this Part is any change in frequency or station location, or any change in power or antenna location or height above average terrain (or combination thereof) which would result in a change of 50% or more of the area within the Grade B contour of the station. (A change in area is defined as the sum of the area gained and the area lost as a percentage of the original area.) In the case of TV translators authorized under Part 74, it is any change in: (i) frequency (output channel); (ii) primary station; (iii) principal community or area to be served; or (iv) peak visual transmitter output power to more than 100 watts. However, the FCC may, within 15 days after the acceptance of any other application for modification of facilities, advise the applicant that such application is considered to be one for a major change and therefore subject to the provisions of §§ 73.3580 and 1.1111 pertaining to major changes.

(2) The second group consists of applications for licenses and all other changes in the facilities of authorized stations.

(b) A new file number will be assigned to an application for a new station, or for major changes in the facilities of an authorized station, when it is amended so as to effect a major change, as defined in (a) (1) above, or so as to result in an assignment or transfer of control (whether by a single amendment or by a series of amendments), which, in the case of an authorized station, would require the filing of an application therefor on FCC Form 314, 315 or 345 (see § 73.3450) and § 73.3580 will apply to such amended application. An application for changes in the facilities of an existing station will continue to carry the same file number even though (pursuant to FCC approval) an assignment of license or transfer of control of such licensee or permittee has taken place if, upon consummation, the application is amended to reflect the new ownership.

(c) Applications for TV stations will be processed as nearly as possible in the order in which they are filed. Such applications will be placed in the processing line in numerical sequence, and will be drawn by the staff for study, the lowest file number first. In order that those applications which are entitled to be grouped for processing may be fixed prior to the time processing of the earliest filed application is begun, the FCC will periodically publish in the Federal Register a Public Notice listing applications which have been accepted for filing and announcing a date (not less than 30 days after publication) on which the listed applications will be considered available and ready for processing and by which all mutually exclusive applications and petitions to deny the listed applications must be filed.

(d) Regardless of the number of applications filed for channels in a city or the number of assignments available in that city, those applications which are mutually exclusive, i.e., which request the same channel, will be designated for hearing. All other applications for channels will, if the applicants are duly qualified, receive grants. For example, if Channels 6, 13, 47, and 53 have been assigned to City X and there are pending two applications for Channel 6 and one application for each of the remaining channels, the latter three applications will be considered grants without hearing and the two mutually exclusive applications requesting Channel 6 will be designated for hearing. If there are two pending applications for Channel 6 and two applications for Channel 13, separate hearings will be held.

(e) Where applications are mutually exclusive because the distance between the respective proposed transmitter sites is contrary to the station separation requirements set forth in § 73.610, such applications will be processed and designated for hearing at the time the application with the lower file number is reached for processing. In order to be considered mutually exclusive with a lower file number application, the higher file number application must have been accepted for filing at least one day before the lower file number application has been acted upon by the FCC.

**§ 73.3573 Processing FM broadcast and FM translator station applications.**

(a) Applications for FM broadcast stations are divided into two groups:

(1) In the first group are applications for new stations or for major changes in the facilities of authorized stations. A major change for FM stations authorized under this Part is any change in frequency, station location or class of station, or any change in power, antenna location or height above average terrain (or combination thereof) which would result in a change of 50% or more in the area within the station's predicted 1 mV/m field strength contour. (A change in area is defined as the sum of the area gained and the area lost as a percentage of the original area.) In the case of FM translator stations authorized under Part 74, it is any change in frequency (output channel), primary stations, or authorized principal community or area. However, the FCC may, within 15 days after the acceptance for filing of any other application for modification of facilities, advise the applicant that such application is considered to be one for a major change and therefore is subject to the provisions of §§ 73.3580 and 1.1111 pertaining to major changes.

(2) The second group consists of applications for licenses and all other changes in the facilities of authorized stations.

(b) A new file number will be assigned to an application for a new station, or for major changes in the facilities of an authorized station, when it is amended so as to effect a major change, as defined in paragraph

(a) (1) of this Section or so as to result in an assignment or transfer of control (whether by a single amendment or by a series of amendments), which, in the case of an authorized station, would require the filing of an application therefor on FCC Form 314, 315 or 345 (see § 73.3540), and § 73.3580 will apply to such amended application. An application for changes in the facilities of an existing station will continue to carry the same file number even though (pursuant to FCC approval) an assignment of license or transfer of control of such licensee or permittee has taken place if, upon consummation, the application is amended to reflect the new ownership.

(c) If, upon examination, the FCC finds that the public interest, convenience and necessity will be served by the granting of an application for FM broadcast facilities (Class A, Class B, Class C or non-commercial educational), the same will be granted. If, on the other hand, the FCC is unable to make such a finding and it appears that a hearing may be required, the procedure set forth in § 73.3593 will be followed.

(d) Applications for FM broadcast stations will be processed as nearly as possible in the order in which they are filed. Such applications will be placed in the processing line in numerical sequence, and will be drawn by the staff for study, the lowest file number first. In order that those applications which are entitled to be grouped for processing may be fixed prior to the time processing of the earliest filed application is begun, the FCC will periodically publish in the Federal Register a Public Notice listing applications which have been accepted for filing and announcing a date (not less than 30 days after publication) on which the listed applications will be considered available and ready for processing and by which all mutually exclusive applications and petitions to deny the listed applications must be filed.

(e) Where applications are mutually exclusive because the distance between their respective proposed transmitter sites is contrary to the station separation requirements set forth in § 73.207 (§ 73.507 for non-commercial educational FM stations), such applications will be processed and designated for hearing at the time the application with the lower file number is reached for processing. In order to be considered mutually exclusive with a lower file number application, the higher file number application must have been accepted for filing at least one day before the lower file number application has been acted upon by the FCC.

**NOTE:** Processing of applications for new low power educational FM applications:

Pending the Commission's restudy of the impact of the rule changes pertaining to the allocations of 10-watt and other low power noncommercial educational FM stations, applications for such new stations, or major changes in existing ones, will not be accepted for filing. Exceptions are: (1) in Alaska, applications for new Class D stations or major changes in existing ones are acceptable for filing; and (2) applications for existing Class D stations to change frequency are acceptable for filing. In (2), upon the grant of such application, the station shall become a Class D (secondary) station. (See First Report and Order, Docket 20735, FCC 78-386, 43 Fed. Reg. 25821, and Second Report and Order, Docket 20735, FCC 78-384, 43 Fed. Reg. 39704.) Effective date of this FCC imposed "freeze" was June 15, 1978. Applications which specify facilities of at least 100 watts effective radiated power will be accepted for filing.

**§ 73.3574 Processing of International broadcast station applications.**

(a) Applications for International station facilities are divided into two groups.

(1) In the first group are applications for new stations, or for major changes in the facilities of authorized stations. A major change is any change in or addition to authorized zones or areas of reception, any change in transmitter location other than one in the immediate vicinity of existing antennas of the station, or any change in power, or antenna directivity. However, the FCC may, within 15 days after the acceptance for filing of any other application for modification, advise the applicant that such application is considered to be one for a major change and therefore is subject to §§ 1.1111 and 73.3580 pertaining to major changes.

(2) The second group consists of applications for licenses and all other changes in the facilities of authorized stations.

(b) If an application is amended so as to effect a major change as defined in paragraph (a) (1) of this Section, or so as to result in an assignment or transfer of control which, in the case of an authorized station, would require the filing of an application therefor on FCC Form 314 or 315 (see § 73.3540), § 73.3580 will apply to such amended application.

(c) Applications for International stations will be processed as nearly as possible in the order in which they are filed.

**§ 73.3578 Amendments to applications for renewal, assignment or transfer of control.**

(a) Any amendment to an application for renewal of any instrument of authorization shall be considered to be a minor amendment, except that any amendment which seeks to change the proposals contained therein relating to future programming of a stations shall be considered to be a major amendment. However, the FCC may, within 15 days after tender for filing of any other amendment, advise the applicant that the amendment is considered to be a major amendment and therefore is subject to the provisions of § 73.3580.

(b) Any amendment to an application for assignment of construction permit or license, or consent to the transfer of control of a corporation holding such a construction permit or license, shall be considered to be a minor amendment, except that any amendment which seeks a change in the ownership interest of the proposed assignee or transferee which would result in a change in control, or any amendment which would require the filing of FCC Forms 314, 315, or 345 (see § 73.3540), if the changes sought were made in an original application for assignment or transfer of control, shall be considered to be a major amendment. However, the FCC may, within 15 days after the acceptance for filing of any other amendment, advise the applicant that the amendment is considered to be a major amendment and therefore is subject to the provisions of § 73.3580.

**§ 73.3580 Local public notice of filing of broadcast applications.**

(a) All applications for instruments of authorization in the broadcast service (and major amendments thereto, as indicated in §§ 73.3571, 73.3572, 73.3573, 73.3574 and 73.3578) are subject to the local public notice provisions of this Section, except application for:

(1) A minor change in the facilities of an authorized station, as indicated in §§ 73.3571, 73.3572, 73.3573 and 73.3574.

(2) Consent to an involuntary assignment or transfer or to a voluntary assignment or transfer which does not result in a change of control and which may be applied for on FCC Form 316 pursuant to the provisions of § 73.3540 (b).

(3) A license under Section 319(c) of the Communications Act or, pending application for or grant of such license, any special or temporary authorization to permit interim operation to facilitate completion of authorized construction or to provide substantially the same service as would be authorized by such license.

(4) Extension of time to complete construction of authorized facilities.

(5) An authorization of facilities for remote pickup or studio links for use in the operation of a broadcast station.

(6) Authorization pursuant to Section 325(b) of the Communication Act ("... studios of foreign stations") where the programs to be transmitted are special events not of a continuing nature.

(7) An authorization under any of the proviso clauses of Section 308(a) of the Communications Act concerning applications for and conditions in licenses.

(b) Applications (as originally filed or amended) will be acted upon by the FCC no sooner than 30 days following public notice of acceptance for filing or amendment, except as otherwise permitted in § 73.3542, "Application for temporary authorization."

(c) An applicant who files an application or amendment thereto which is subject to the provisions of this Section, must give a notice of this filing in a newspaper. Exceptions to this requirement are applications for renewal of AM, FM and TV station licenses, applications for International broadcast stations, TV and FM translator stations, FM booster stations; and applicants subject to paragraph (e) of this Section. The filing notice shall be given in a newspaper either immediately following the tendering for filing of the application or amendment, or immediately following notification to the applicant by the FCC that a major change is involved requiring the applicant to give public notice pursuant to §§ 73.3571, 73.3572, 73.3573 or 73.3578.

(1) *Notice requirements for these applicants are as follows:*

(i) In a daily newspaper of general circulation published in the community in which the station is located, or proposed to be located, at least twice a week

for two consecutive weeks in a three-week period; or,

(ii) If there is no such daily newspaper, in a weekly newspaper of general circulation published in that community, once a week for 3 consecutive weeks in a 4-week period; or,

(iii) If there is no daily or weekly newspaper published in that community, in the daily newspaper from wherever published, which has the greatest general circulation in that community, twice a week for 2 consecutive weeks within a 3-week period.

(2) *Notice requirements for applicants for a permit pursuant to § 325(b) of the Communications Act ("... Studios of Foreign Stations") are as follows:*

(i) In a daily newspaper of general circulation in the largest city in the principal area to be served in the U.S.A. by the foreign broadcast station, at least twice a week for 2 consecutive weeks within a three-week period.

(3) *Notice requirements for applicants for a change in station location are as follows:*

(i) In the community in which the station is located and the one in which it is proposed to be located, in a newspaper with publishing requirements as in (c) (1) (i), (ii) or (iii) above.

(4) The notice required in (1), (2) and (3) above shall contain the information described in (f) of this Section.

(d) The licensee of an operating broadcast station who files an application or amendment thereto which is subject to the provisions of this Section must give notice as follows:

(1) *An applicant who files for renewal of a broadcast station license* must give notice of this filing by broadcasting announcements on applicant's station. (Sample and schedule of announcements are below.) Newspaper publication is not required.

(2) *An applicant who files an amendment of an application for renewal of a broadcast station license* will comply with (d) (1) above.

(3) *An applicant who files for modification, assignment or transfer of a broadcast station license* (except for International broadcast stations, TV or FM translator stations and FM booster stations) shall give notice of the filing in a newspaper as described in paragraph (c) above, and also broadcast the same notice over that station as follows:

(i) At least once daily on 4 days in the second week immediately following either the tendering for filing of the application or immediately following notification to the applicant by the FCC that Public Notice is required pursuant to §§ 73.3571, 73.3572, 73.3573 or 73.3578.

(4) The broadcast notice requirements for those filing renewal applications and amendments thereto are as follows:

(i) *Pre-filing announcements.* During the period and beginning on the first day of the sixth full calendar month prior to the expiration of the license, and continuing to the date on which the application is filed, the following announcement shall be broad-

cast on the 1st and 16th day of each calendar month. Stations broadcasting primarily in a foreign language should broadcast the announcements in that language.

On (*date of last renewal grant*) (*Station's call letters*) was granted a license by the Federal Communications Commission to serve the public interest as a public trustee until (*expiration date*).

Our license will expire on (*date*). We must file an application for license renewal with the FCC (*date four calendar months prior to expiration date*). When filed, a copy of this application will be available for public inspection during our regular business hours. It contains information concerning this station's performance during the last (*period of time covered by the application*) and projections of our programming during the next three years.

Individuals who wish to advise the FCC of facts relating to our renewal application and to whether this station has operated in the public interest should file comments and petitions with the FCC by (*date first day of last full calendar month prior to the month of expiration*).

Further information concerning the FCC's broadcast license renewal process is available at (*address of location of the station's public inspection file*) or may be obtained from the FCC, Washington, D.C. 20554.

(A) This announcement shall be made during the following time periods:

(1) For commercial TV stations—at least two of the required announcements between 6 p.m. and 11 p.m. (5 p.m. and 10 p.m. Central and Mountain Time).

(2) For commercial radio stations—at least two of the required announcements between 7 a.m. and 9 a.m. and/or 4 p.m. and 6 p.m. For stations which neither operate between 7 a.m. and 9 a.m. nor between 4 p.m. and 6 p.m., at least two of the required announcements shall be made during the first two hours of broadcast operation.

(3) For noncommercial educational stations, at the same time as commercial stations, except that such stations need not broadcast the announcement during any month during which the station does not operate.

(ii) *Post-filing announcements.* During the period beginning on the date on which the renewal application is filed to the sixteenth day of the next to last full calendar month prior to the expiration of the license, all applicants for the renewal of broadcast station licenses shall broadcast the following announcement on the 1st and 16th day of each calendar month. Stations broadcasting primarily in a foreign language should broadcast the announcements in that language.

On (*date of last renewal grant*) (*Station's call letters*) was granted a license by the Federal Communications Commission to serve the public interest as a public trustee until (*expiration date*)

Our license will expire on (*date*). We have filed an application for renewal with the FCC.

A copy of this application is available for public inspection during our regular business hours. It contains information concerning this station's performance during the last (*period of time covered by application*) and projections of our programming during the next three years.

Individuals who wish to advise the FCC of facts relating to our renewal application and to whether this station has operated in the public interest should file comments and petitions with the FCC by (*date first day of last full calendar month prior to the month of expiration*).

Further information concerning the FCC's broadcast license renewal process is available at (*address of location of the station's public inspection file*) or may be obtained from the FCC, Washington, D.C. 20554.

(A) This announcement shall be made during the following time periods:

(1) For commercial TV stations—at least three of the required announcements between 6 a.m. and 11 p.m. (5 p.m. and 10 p.m. Central and Mountain Time), at least one announcement between 9 a.m. and 1 p.m., at least one announcement between 1 p.m. and 5 p.m., and at least one announcement between 5 p.m. and 7 p.m.

(2) For commercial radio stations—at least three of the required announcements between 7 a.m. and 9 a.m. and/or 4 p.m. and 6 p.m., at least one announcement between 9 a.m. and noon, at least one announcement between noon and 4 p.m., and at least one announcement between 7 p.m. and midnight. For stations which do not operate between 7 a.m. and 9 a.m. or between 4 p.m. and 6 p.m., at least three of the required announcements shall be made during the first two hours of broadcast operation.

(3) For noncommercial educational stations, at the same time as commercial stations, except that such stations need not broadcast the announcement during any month during which the station does not operate. In such instances noncommercial educational stations shall meet the requirements in the exact order specified in (ii) (A) (1) or (2) above (e.g., if only four renewal notices are broadcast by an educational TV licensee, 3 must be broadcast between 6 p.m. and 11 p.m. and the fourth between 9 a.m. and 1 p.m.).

(iii) TV broadcast stations (commercial and non-commercial educational), in presenting the pre- and post-filing announcements, must use visuals with the licensee's and the FCC's addresses when this information is being orally presented by the announcer.

(iv) Stations which have not received a renewal grant since the filing of their previous renewal application, shall use the following first paragraph for the pre-filing and the post-filing announcements:

(*Station's call letters*) is licensed by the Federal Communications Commission to serve the public interest as a public trustee.

(v) During the period beginning on the first day of the sixth full calendar month prior to the expiration of

the broadcast station license up to the first day of the last full calendar month prior to expiration, the public notice requirements under § 73.1202 do not apply.

(e) When the station in question is the only operating station in its broadcast service which is located in the community involved, or if it is a noncommercial educational station, publication of the notice in a newspaper, as provided in paragraph (c) of this Section is not required, and publication by broadcast over that station as provided in paragraph (d) shall be deemed sufficient to meet the notice requirements of this Section. Noncommercial educational broadcast stations which do not broadcast during the portion of the year in which the period of broadcast of notice falls must comply with the provisions of paragraph (c) of this Section.

(f) The notice required by paragraphs (c) and (d) of this Section shall contain the following information, except as otherwise provided in paragraphs (d) (1) and (2) and (e) of this Section in the case of license renewal applications:

(1) The name of the applicant, if the applicant is an individual; the names of all partners, if the applicant is a partnership; or the names of all officers and directors and of those persons holding 10% or more of the capital stock or other ownership interest if the applicant is a corporation or an unincorporated association. (In the case of applications for assignment or transfer of control, information should be included for all parties to the application.)

(2) The purposes for which the application was filed (such as, construction permit, modification, transfer or assignment of control).

(3) The date when the application or amendment was tendered for filing with the FCC.

(4) The call letters, if any, of the station, and the frequency or channel on which the station is operating or proposes to operate.

(5) In the case of an application for construction permit for a new station, the facilities sought, including type and class of station, power, location of studios, transmitter site and antenna height.

(6) In the case of an application for modification of a construction permit or license, the exact nature of the modification sought.

(7) In the case of an amendment to an application, the exact nature of the amendment.

(8) In the case of applications for a permit pursuant to Section 325(b) of the Communications Act ("... studios of foreign stations"), the call letters and location of the foreign radio broadcast station, the frequency or channel on which it operates, and a description of the programs to be transmitted over the station.

(9) A statement that a copy of the application, amendment(s), and related material are on file for public inspection at a stated address in the community in which the main studio is maintained or is proposed to be located. See §§ 73.3526 and 73.3527.

(g) An applicant who files an application or amendment thereto for a TV or FM translator station or an FM booster station must give notice of this filing in a daily, weekly or biweekly newspaper of general circulation in the community or area to be served. The filing notice will be given immediately following the tendering for filing of the application or amendment, or immediately following notification to the applicant by the FCC that public notice is required pursuant to §§ 73.3571, 73.3572, 73.3573 or 73.3578.

(1) *Notice requirements for these applicants are as follows:*

(i) In the newspaper at least once during a 2-week period; or

(ii) If there is no newspaper published or having circulation in the community or area to be served, the applicant shall determine an appropriate means of providing the required notice to the general public, such as posting in the local post office or other public place. The notice shall state:

(A) The name of the applicant, the community or area to be served, and the transmitter site.

(B) The purpose for which the application was filed.

(C) The date when the application or amendment was filed with the FCC.

(D) The output channel or channels on which the station is operating or proposes to operate and the power used or proposed to be used.

(E) In the case of an application for changes in authorized facilities, the nature of the changes sought.

(F) In the case of a major amendment to an application, the nature of the amendment.

(G) A statement that the station engages in or intends to engage in rebroadcasting, and the call letters, location and channel of operation of each station whose signals it is rebroadcasting or intends to rebroadcast.

(h) Within 7 days of the last day of publication in a newspaper or broadcast of the notice required by paragraphs (c), (d) or (g) of this Section, the applicant shall file a statement with the FCC (in triplicate if filed pursuant to paragraph (c) or (d); original only, if filed pursuant to paragraph (g)), setting forth the dates on which the notice was published, the newspaper in which the notice was published, the text of the notice, and/or, where applicable, the dates and times that the notice was broadcast and the text thereof. When public notice is given by other means, as provided in paragraph (g) of this Section, the applicant shall file, within 7 days of the giving of such notice, the text of the notice, the means by which it was accomplished, and the date thereof.

(i) Paragraphs (a) through (h) of this Section apply to major amendments to license renewal applications. See § 73.3578(a).

#### § 73.3584 Petitions to Deny.

(a) Any party in interest may file with the Commission a petition to deny any application (whether as originally filed or if amended so as to require a new

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file number pursuant to §§ 73.3571(j), 73.3572(b), 73.3573(b), 73.3574(b), or 73.3578) for which local notice pursuant to Section 73.3580 is required, provided such petitions are filed prior to the day such applications are granted or designated for hearing; but where the FCC issues a public notice pursuant to the provisions of §§ 73.3571(c), 73.3572(c), or 73.3573(d), establishing a "cut-off" date, such petitions must be filed by the date specified. In the case of applications for transfers and assignments of construction permits or station licenses, petitions to deny must be filed not later than 30 days after issuance of a public notice of the acceptance for filing of the application. In the case of applications for renewal of license, petitions to deny may be filed at any time up to the last day for filing mutually exclusive applications under § 73.3516(e). Requests for extension of time to file petitions to deny applications for new broadcast stations or major changes in the facilities of existing stations or applications for renewal of license will not be granted unless all parties concerned, including the applicant, consent to such requests, or unless a compelling showing can be made that unusual circumstances make the filing of a timely petition impossible and the granting of an extension warranted.

(b) The applicant may file an opposition to any petition to deny, and the petitioner a reply to such opposition in which allegations of fact or denials thereof shall be supported by affidavit of a person or persons with personal knowledge thereof. The times for filing such oppositions and replies shall be those provided in § 1.45 except that as to a petition to deny an application for renewal of license, an opposition thereto may be filed within 30 days after the petition to deny is filed, and the party that filed the petition to deny may reply to the opposition within 20 days after the opposition is due or within 20 days after the opposition is filed, whichever is longer. The failure to file an opposition or a reply will not necessarily be construed as an admission of any fact or argument contained in a pleading.

(c) Untimely petitions to deny, as well as other pleadings in the nature of a petition to deny, and any other pleadings or supplements which do not lie as a matter of law or are otherwise procedurally defective, are subject to return by the FCC's staff without consideration.

#### § 73.3587 Procedure for filing informal objections.

Before FCC action on any application for an instrument of authorization, any person may file informal objections to the grant. Such objections may be submitted in letter form (without extra copies) and shall be signed. The limitation on pleadings and time for filing pleadings provided for in § 1.45 of the rules shall not be applicable to any objections duly filed under this Section.

#### ACTION ON APPLICATIONS

#### § 73.3591 Grants without hearing.

(a) In the case of any application for an instrument

of authorization, other than a license pursuant to a construction permit, the FCC will make the grant if it finds (on the basis of the application, the pleadings filed, or other matters which it may officially notice) that the application presents no substantial and material question of fact and meets the following requirements:

(1) There is not pending a mutually exclusive application filed in accordance with paragraph (b) of this Section;

(2) The applicant is legally, technically, financially, and otherwise qualified;

(3) The applicant is not in violation of provisions of law, the FCC rules, or established policies of the FCC; and

(4) A grant of the application would otherwise serve the public interest, convenience and necessity.

(b) In making its determinations pursuant to the provisions of paragraph (a) of this Section, the FCC will not consider any other application, or any application if amended so as to require a new file number, as being mutually exclusive or in conflict with the application under consideration unless such other application was substantially complete and tendered for filing by:

(1) the close of business on the day preceding the day designated by Public Notice published in the Federal Register as the day the listed application is to be available and ready for processing; or

(2) the date prescribed in § 73.3516(e) in the case of applications which are mutually exclusive with applications for renewal of license of broadcast stations.

(c) If a petition to deny the application has been filed in accordance with § 73.3584 and the FCC makes the grant in accordance with paragraph (a) of this Section, the FCC will deny the petition and issue a concise statement setting forth the reasons for denial and disposing of all substantial issues raised by the petition.

#### § 73.3592 Conditional grant.

(a) Where a grant of an application would preclude the grant of any application or applications mutually exclusive with it, the FCC may, if the public interest will be served thereby, make a conditional grant of one of the applications and designate all of the mutually exclusive applications for hearing. Such conditional grant will be made upon the express condition that such grant is subject to being withdrawn if, at the hearing, it is shown that public interest will be better served by a grant of one of the other applications. Such conditional grants will be issued only where it appears:

(1) That some or all of the applications were not filed in good faith but were filed for the purpose of delaying or hindering the grant of another application; or

(2) The public interest requires the prompt establishment of broadcast service in a particular community or area; or

(3) That a grant of one or more applications would be in the public interest, and that a delay in making a grant to any applicant until after the conclusion of a hearing on all applications might jeopardize the rights of the United States under the provisions of international agreement to the use of the frequency in question; or

(4) That a grant of one application would be in the public interest, and that it appears from an examination of the remaining applications that they cannot be granted because they are in violation of provisions of the Communications Act, other statutes, or the provisions of the FCC rules.

(b) When two or more applications for the same AM, FM or TV assignment have been designated for hearing, the FCC may, if the public interest will be served thereby, make a conditional grant to a group composed of any two or more of the competing applicants, such grant to terminate when the successful applicant commences operation under the terms of a regular authorization. No conditional grant will be made unless all of the competing applicants have been afforded a reasonable opportunity to participate in the group seeking the conditional grant. In its application, the group shall include a special showing as to the need for the service pending operation by the successful applicant under the terms of a regular authorization; the effect, if any of a grant on the position of any applicant which is not a member of the group; and any other factors which are deemed pertinent to the public interest judgment.

#### § 73.3593 Designation for hearing.

If the FCC is unable, in the case of any application for an instrument of authorization, to make the findings specified in § 73.3591(a), it will formally designate the application for hearing on the grounds or reasons then obtaining and will forthwith notify the applicant and all known parties in interest of such action and the grounds and reasons therefor, specifying with particularity the matters and things in issue but not including issues or requirements phrased generally.

#### § 73.3594 Local public notice of designation for hearing.

(a) Except as otherwise provided in paragraph (c) of this Section, when an application subject to the provisions of § 73.3580 (except for applications in the International broadcast service, for TV or FM translator stations) is designated for hearing, the applicant shall give notice of such designation as follows: Notice shall be given at least twice a week, for 2 consecutive weeks within the 3-week period immediately following release of the FCC's order, specifying the time and place of the commencement of the hearing, in a daily newspaper of general circulation published in the community in which the station is located and proposed to be located.

(1) However, if there is no such daily newspaper published in the community, the notice shall be given as follows:

(i) If one or more weekly newspapers of general circulation are published in the community in which the station is located or proposed to be located, notice shall be given in such a weekly newspaper once a week for 3 consecutive weeks within the 4-week period immediately following the release of the FCC's order, specifying the time and place of the commencement of the hearing;

(ii) If no weekly newspaper of general circulation is published in the community in which the station is located or proposed to be located, notice shall be given at least twice a week for 2 consecutive weeks within the 3-week period immediately following the release of the FCC's order, specifying the time and place of the commencement of the hearing in the daily newspaper having the greatest general circulation in the community in which the station is located or proposed to be located.

(2) In the case of an application for a permit pursuant to Section 325(b) of the Communications Act, the notice shall be given at least twice a week for 2 consecutive weeks within the 3-week period immediately following release of the FCC's order, specifying the time and place of the commencement of the hearing in a daily newspaper of general circulation in the largest city in the principal area to be served in the United States by the foreign radio broadcast station.

(3) In the case of an application for change in the location of a station, the notice shall be given both in the community in which the station is located and in the community in which the station is proposed to be located.

(b) When an application which is subject to the provision of § 73.3580 and which seeks modification, assignment, transfer, or renewal of an operating broadcast station is designated for hearing (except for applications in the International broadcast service, for TV or FM translator stations and FM booster stations), the applicant shall, in addition to giving notice of such designation as provided in paragraph (a) of this Section, cause the same notice to be broadcast over that station at least once daily on 4 days in the second week immediately following the release of the FCC's order, specifying the time and place of the commencement of the hearing. In the case of TV broadcast stations and noncommercial educational TV broadcast stations, such notice shall be broadcast orally with camera focused on the announcer. The notice required by this paragraph shall be broadcast during the following periods:

(1) For commercial TV stations, between 7:00 p.m. and 10:00 p.m.

(2) For commercial AM and FM stations, between 7:00 a.m. and 10:00 a.m., but if such stations do not operate during those hours, then between 6:00 p.m. and 9:00 p.m.

(3) For noncommercial educational TV stations, between 7:00 p.m. and 10:00 p.m., but if the period of broadcast of notice falls within a portion of the year during which such stations do not broadcast, then

such stations need not comply with the provisions of this paragraph.

(4) For noncommercial educational AM and FM stations, between 3:00 p.m. and 10:00 p.m., but if the period of broadcast of notice falls within a portion of the year during which such stations do not broadcast, then such stations need not comply with the provisions of this paragraph.

(c) If the station in question is the only operating station in its broadcast service which is located in the community involved, or if it is a noncommercial educational station, publication of the notice in a newspaper, as provided in paragraph (a) of this Section, is not required, and publication by broadcast over that station as provided in paragraph (b) shall be deemed sufficient to meet the requirements of paragraphs (a) and (b) of this Section. However, noncommercial educational stations which do not broadcast during the portion of the year in which the period of broadcast of notice falls must comply with the provisions of paragraph (a) of this Section.

(d) The notice required by paragraphs (a) and (b) of this Section shall state:

(1) The name of the applicant or applicants designated for hearing.

(2) The call letters, if any, of the station or stations involved, and the frequencies or channels on which the station or stations are operating or proposed to operate.

(3) The time and place of the hearing.

(4) The issues in the hearing as listed in the FCC's order of designation for hearing.

(5) A statement that a copy of the application, amendment(s), and related material are on file for public inspection at a stated address in the community in which the main studio is maintained or is proposed to be located. See §§ 73.3536 and 73.3527.

(e) When an application for renewal of license is designed for hearing, the notice shall contain the following additional statements:

(1) Immediately preceding the listing of the issues in the hearing:

The application of this station for a renewal of its license to operate this station in the public interest was tendered for filing with the Federal Communications Commission on *(date)*. After considering this application, the FCC has determined that it is necessary to hold a hearing to decide the following questions:

(2) Immediately following the listing of the issues in the hearing:

The hearing will be held at *(place of hearing)* commencing at *(time)*, on *(date)*. Members of the public who desire to give evidence concerning the foregoing issues should write to the Federal Communications Commission, Washington, D.C. 20554, not later than *(date)*. Letters should set forth in detail the specific facts concerning which the writer wishes to give evidence. If the FCC believes that the evidence is legally competent, material, and relevant to the

issues, it will contact the person in question.

(Here the applicant shall insert, as the date on or before which members of the public who desire to give evidence should write to the FCC, the date 30 days after the date of release of the FCC's order specifying the time and place of the commencement of the hearing.)

(f) When an application for a TV or FM translator station, or an FM booster station which is subject to the provisions of § 73.3580 is designated for hearing, the applicant shall give notice of such designation as follows: Notice shall be given at least once during the 2-week period immediately following release of the FCC's order, specifying the time and place of the commencement of the hearing in a daily, weekly or biweekly publication having general circulation in the community or area to be served. However, if there is no publication of general circulation in the community or area to be served, the applicant shall determine an appropriate means of providing the required notice to the general public, such as posting in the local post office or other public place. The notice shall state:

(1) The name of the applicant or applicants designated for hearing.

(2) The call letters, if any, of the station or stations involved, the output channel or channels of such stations, and the call letters, channel and location of the station or stations being or proposed to be rebroadcast.

(3) The time and place of the hearing.

(4) The issues in the hearing as listed in the FCC's order of designation for hearing.

(5) If the application is for renewal of license, the notice shall contain, in addition to the information required by (1) through (4) of this paragraph, the statements required by paragraph (e) of this Section.

(g) Within 7 days of the last day of publications or broadcast of the notice required by paragraphs (a) and (b) of this Section, the applicant shall file a statement in triplicate with the FCC setting forth the dates on which the notice was published, the newspaper in which the notice was published, the text of the notice, and/or, where applicable, the date and time the notice was broadcast and the text thereof. When public notice is given by other means, as provided in paragraph (f) of this Section, the applicant shall file, within 7 days of the giving of such notice, the text of the notice, the means by which it was accomplished, and the date thereof.

(h) The failure to comply with the provisions of this Section is cause for dismissal of an application with prejudice. However, upon a finding that applicant has complied (or proposes to comply) with the provisions of Section 311(a)(2) of the Communications Act, and that the public interest, convenience and necessity will be served thereby, the presiding officer may authorize an applicant, upon a showing of special circumstances, to publish notice in a manner other than that prescribed by this Section; may accept publication of notice which does not conform strictly in all respects with the pro-

visions of this Section; or may extend the time for publishing notice.

#### § 73.3597 Procedures on transfer and assignment applications.

(a) If, upon the examination of an application for FCC consent to an assignment of a broadcast construction permit or license or for a transfer of control of a corporate permittee or licensee, it appears that the station involved has been operated by the proposed assignor or transferor for less than three successive years, the application will be designated for hearing on appropriate issues unless the FCC is able to find that:

(1) The application involves an FM or TV translator station or FM booster station only;

(2) The application involves a *pro forma* assignment or transfer of control; or

(3) The assignor or transferor has made an affirmative factual showing, supported by affidavits of a person or persons with personal knowledge thereof, which establishes that, due to unavailability of capital, to death or disability of station principals, or to other changed circumstances affecting the licensee or permittee occurring subsequent to the acquisition of the license or permit, FCC consent to the proposed assignment or transfer of control will serve the public interest, convenience and necessity.

(b) The commencement date of the 3-year period set forth in paragraph (a) of this Section shall be determined as follows:

(1) Where the authorizations involved in the application consist of a license and a construction permit authorizing a major change in the facilities of the licensed station (as defined in §§ 73.3571, 73.3572 and 73.3573), the 3-year period shall commence with the date of the FCC's grant of the construction permit for the modification. However, when operating authority has been issued to cover the construction permit for a major change in facility, the commencement date for calculating the length of time the station has been operated for purposes of this Section shall then revert to the date the licensee received its original operating authority. A grant of authority for minor modifications in authorized facilities shall have no effect upon the calculation of this time period.

(2) Where the authorization involved in the application consists of a permit authorizing the construction of a new facility, or of a license covering such permit, the 3-year period shall commence with the date of issuance of initial operating authority.

(3) Where the operating station involved in the application was obtained by means of an assignment or transfer of control (other than *pro forma*), the 3-year period shall commence with the date of grant by the FCC of the application for the assignment or transfer of control. If the station was put in operation after such assignment or transfer, (1) and (2) of this paragraph shall apply.

(4) Where an application is filed for FCC consent to

a transfer of control of a corporation holding multiple licenses and/or construction permits, the commencement date applicable to the last-acquired station shall apply to all the stations involved in the transfer, except where the application involves an FM station operated for less than 3 years and an AM station operated for more than 3 years, both serving substantially the same area. This exception shall apply to the same circumstances where assignment applications are involved.

(c) In determining whether a broadcast interest has been held for 3 years, the FCC will calculate the period between the date of acquisition (as specified in paragraph (b) of this Section) and the date the application for transfer or assignment is tendered for filing with the FCC. The period for which an FM station licensee holds a subsidiary communications authorization (SCA) is not considered in the 3-year determination.

(d) With respect to applications filed after the 3-year period, the Chief of the Broadcast Bureau is directed to examine carefully such applications, on a case-to-case basis, to determine whether any characteristics of trafficking remain and, if so, to seek additional information, by letter inquiries to the applicants, such as that which would be required to be developed and tested in the hearing process with respect to stations held less than 3 years.

(e) (1) As used in paragraphs (e) and (f) of this Section:

(i) "Unbuilt station" refers to an AM, FM or TV broadcast station for which a construction permit is outstanding, and, regardless of the stage of physical completion, for which Program Test Authority has not been issued.

(ii) "Seller" includes the assignor(s) of a construction permit for an unbuilt station, the transferor(s) of control of the holder of such construction permit, and any principal or such assignor(s) or transferor(s) who retains an interest in the permittee or acquires or reacquires such interest within 1 year after the issuance of Program Test Authority.

(2) The FCC will not consent to the assignment or transfer of control of the construction permit of an unbuilt station if the agreements or understandings between the parties provide for, or permit, payment to the seller of a sum in excess of the aggregate amount clearly shown to have been legitimately and prudently expended and to be expended by the seller, solely for preparing, filing, and advocating the grant of the construction permit for the station, and for other steps reasonably necessary toward placing the station in operation.

(3) (1) Applications for consent to the assignment of a construction permit or transfer of control shall, in the case of unbuilt stations, be accompanied by declarations both by the assignor (or transferor) and by the assignee (or transferee) that, except as clearly disclosed in detail in the applications, there are no agreements or understandings for reimbursement of the seller's expenses or other payments to the seller, for the seller's retention of any interest in the station,

for options or any other means by which the seller may acquire such an interest, or for any other actual or potential benefit to the seller in the form of loans, the subsequent repurchase of the seller's retained interest, or otherwise.

(ii) When the seller is to receive reimbursement of his expenses, the applications of the parties shall include an itemized accounting of such expenses, together with such factual information as the parties rely upon for the requisite showing that those expenses represent legitimate and prudent outlays made solely for the purposes allowable under (2) of this paragraph.

(f) (1) Whenever an agreement for the assignment of the construction permit of an unbuilt station or for the transfer of control of the permittee of an unbuilt station, or any arrangement or understanding incidental thereto, provides for the retention by the seller of any interest in the station, or for any other actual or potential benefit to the seller in the form of loans or otherwise, the question is raised as to whether the transaction involves actual or potential gain to the seller over and above the legitimate and prudent out-of-pocket expenses allowable under paragraph (e) (2) of this Section. In such cases the FCC will designate the assignment or transfer applications for evidentiary hearing. However, a hearing is not mandatory in cases coming within (f) (2) below.

(2) It is not intended to forbid the seller to retain an equity interest in an unbuilt station which he is transferring or assigning if the seller obligates himself, for the period ending 1 year after the issuance of Program Test Authority, to provide that part of the total capital made available to the station, up to the end of that period, which is proportionate to the seller's equity share in the permittee, taking into account equity capital, loan capital, and guarantees of interest and amortization payments for loan capital provided by the seller before the transfer or assignment. This condition will be satisfied:

(i) In the case of equity capital: By paid-in cash capital contributions proportionate to the seller's equity share;

(ii) In cases where any person who has an equity interest in the permittee provides loan capital: By the seller's provision of that part of the total loan capital provided by equity holders which is proportionate to the seller's equity share; and

(iii) In cases where any person cosigns or otherwise guarantees payments under notes given for loan capital provided by nonequity holders: By similar guarantees by the seller covering that part of such payments as is proportionate to the seller's equity share. However, this condition shall not be deemed to be met if the guarantees given by persons other than the seller cover, individually or collectively, a larger portion of such payments than the ratio of the combined equities of persons other than the seller to the total equity.

(3) In cases which are subject to the requirements of (f) (2) (i), (ii) and (iii) above:

(i) The assignee's (or transferee's) application shall

include a showing of the anticipated capital needs of the station through the first year of its operation and the seller's financial capacity to comply with the above requirements, in the light of such anticipated capital needs.

(ii) The FCC will determine from its review of the applications whether a hearing is necessary to ensure compliance with the above requirements.

(iii) Compliance with the above requirements will be subject to review by the FCC at any time, either when considering subsequently filed applications or whenever the FCC may otherwise find it desirable.

(iv) Within 30 days after any time when a seller is required to provide equity or loan capital or execute guarantees, the permittee shall furnish the FCC a written report containing sufficient details as to the sources and amounts of equity capital paid in, loan capital made available, or guarantees obtained as to enable the FCC to ascertain compliance with the above requirements.

(v) No steps shall be taken by the permittee to effectuate arrangements for the provision of equity or loan capital from sources not previously identified and disclosed to the FCC, until 30 days after the permittee has filed with the FCC a report of such arrangements and of provisions made for the seller's compliance with the above requirement.

(vi) The provisions of (f) (3) (iv) and (v) above shall cease to apply 1 year after the issuance of Program Test Authority.

(4) Applications subject to this paragraph (f) will, in any event, be designated for evidentiary hearing in any case where the agreements, arrangements or understandings with the seller provide for the seller's option to acquire equity in the station or to increase equity interests he retains at the time of the assignment or transfer of control. An evidentiary hearing will similarly be held in any case in which the assignee(s), transferee(s) or any of their principals, or any person in privity therewith, has an option to purchase all or part of the seller's retained or subsequently acquired equity interests in the station.

§ 73.3598 Period of construction.

(a) *TV broadcast stations.* Each original construction permit for the construction of a new TV broadcast station, or to make changes in an existing station, shall specify a period of 18 months within which construction shall be completed and application for license filed. Permittees for new TV stations shall file a report in the ninth month after the grant of the construction permit setting forth the progress made toward building the station. Such progress report shall be signed by the principal(s) of the permittee.

(b) *Other broadcast, auxiliary and Instructional Television Fixed Stations.* Each original construction permit for the construction of a new AM, FM, International broadcast station, TV or FM translator, FM booster, broadcast auxiliary or Instructional Television Fixed Station (ITFS), or to make changes in such existing stations, shall specify a period of 12

months within which construction shall be completed and application for license be filed.

§ 73.3599 Forfeiture of construction permit.

A construction permit shall be automatically forfeited if the station is not ready for operation within the time specified therein or within such further time as the FCC may have allowed for completion, and a notation of the forfeiture of any construction permit under this provision will be placed in the records of the FCC as of the expiration date.

§ 73.3601 Simultaneous modification and renewal of license.

When an application is granted by the FCC necessitating the issuance of a modified license less than 60 days prior to the expiration date of the license sought to be modified, and an application for renewal of the license is granted subsequent or prior thereto (but within 30 days of expiration of the present license), the modified license as well as the renewal license shall be issued to conform to the combined action of the FCC.

§ 73.3603 Special waiver procedure relative to applications.

(a) In the case of any broadcast applications designated for hearing, the parties may request the FCC to grant or deny an application upon the basis of the information contained in the applications and other papers specified in paragraph (b) of this Section, without the presentation of oral testimony. Any party desiring to follow this procedure should execute and file with the FCC a waiver in accordance with paragraph (e) of this Section, and serve copies on all other parties, or a joint waiver may be filed by all the parties. Upon the receipt of waivers from all parties to a proceeding, the FCC will decide whether the case is an appropriate one for determining without the presentation of oral testimony. If it is determined by the FCC that, notwithstanding the waivers, the presentation of oral testimony is necessary, the parties will be so notified and the case will be retained on the hearing docket. If the FCC concludes that the case can appropriately be decided without the presentation of oral testimony, the record will be considered as closed as of the date the waivers of all the parties were first on file with the FCC.

(b) In all cases considered in accordance with this procedure, the FCC will decide the case on the basis of the information contained in the applications and in any other papers pertaining to the applicants or applications which are open to public inspection and which were on file with the FCC when the record was closed. The FCC may call upon any party to furnish any additional information which the FCC deems necessary to a proper decision. Such information shall be served upon all parties. The waiver previously executed by the parties shall be considered in effect unless within 10 days of the service of such information the waiver is withdrawn.

(c) Any decision by the FCC rendered pursuant to this Section will be in the nature of a final decision,

unless otherwise ordered by the FCC.

(d) By agreeing to the waiver procedure prescribed in this Section, no party shall be deemed to waive the right to petition for reconsideration or rehearing, or to appeal to the courts from any adverse final decision of the FCC.

(e) The waiver provided for by this Section shall be in the following form:

**WAIVER**

Name of applicant \_\_\_\_\_

Call letters \_\_\_\_\_

Docket No. \_\_\_\_\_

The undersigned hereby requests the FCC to consider its application and grant or deny it in accordance with the procedure prescribed in § 73.3603 of the FCC's rules and regulations. It is understood that all the terms and provisions of \_\_\_\_\_ are incorporated in this waiver.

**§ 73.3605 Retention of applications in hearing status after designation for hearing.**

(a) After an application for a broadcast facility is designated for hearing, it will be retained in hearing status upon the dismissal or amendment and removal from hearing of any other application or applications with which it has been consolidated for hearing.

(b) Where any applicants for a broadcast facility file a request pursuant to § 73.3525(a) for approval of an agreement to remove a conflict between their applications, the applications will be retained in hearing status pending such proceedings on the joint request as may be ordered and such action thereon as may be taken.

(1) If further hearing is not required on issues other than those arising out of the agreement, the proceeding shall be terminated and appropriate disposition shall be made of the applications.

(2) Where further hearing is required on issues unrelated to the agreement, the presiding officer shall continue to conduct the hearing on such other issues pending final action on the agreement, but the record in the proceeding shall not be closed until such final action on the agreement has been taken.

(3) In any case where a conflict between applications will be removed by an agreement for an engineering amendment to an application, the amended application shall be removed from hearing status upon final approval of the agreement and acceptance of the amendment.

(c) An application for a broadcast facility which has been designated for hearing and which is amended so as to eliminate the need for hearing or further hearing on the issues specified, other than as provided for in paragraph (b) of this Section, will be removed from hearing status.

**§ 73.3610 TV programming report.**

Each licensee or permittee of a commercially oper-

ated TV station shall file an annual programming report with the FCC on or before February 1 of each year on FCC Form 303-A

**§ 73.3611 Financial report.**

Each licensee or permittee of a commercially operated AM, FM, TV, or International broadcast station shall file an annual financial report with the FCC on or before April 1 of each year on FCC Form 324.

**§ 73.3612 Annual employment report.**

Each licensee or permittee of a commercially or noncommercially operated AM, FM, TV or International broadcast station with five or more fulltime employees shall file an annual employment report with the FCC on or before May 31 of each year on FCC Form 395.

**§ 73.3613 Filing of contracts.**

Each licensee or permittee of a commercial or non-commercial AM, FM, TV or International broadcast station shall file with the FCC copies of the following contracts, instruments, and documents together with amendments, supplements, and cancellations (with the substance of oral contracts reported in writing), within 30 days of execution thereof:

(a) Network service: Network affiliation contracts between stations and networks will be reduced to writing and filed as follows:

(1) All network affiliation contracts, agreements or understandings between a TV station and a national, regional or other network.

(2) All network affiliation contracts, agreements or understandings between a commercial AM or FM station and a network as defined in §§ 73.132 and 73.232, where the network normally furnishes programming to affiliated stations at least 5 days each week during 8 months or more of the year.

(3) Each such filing on or after May 1, 1969, initially shall consist of a written instrument containing all of the terms and conditions of such contract, agreement or understanding without reference to any other paper or document by incorporation or otherwise. Subsequent filings may simply set forth renewal, amendment or change, as the case may be, of a particular contract previously filed in accordance herewith.

(4) The FCC shall also be notified of the cancellation or termination of network affiliations, contracts for which are required to be filed by this Section.

(5) Transcription agreements or contracts for the supplying of videotape recordings and film for TV stations which specify option time must be filed.

(6) This section does not require the filing of transcription agreements or contracts for the supplying of videotape recordings and film for TV stations which do not specify option time, nor contracts granting the right to broadcast music such as ASCAP, BMI or SESAC agreements.

(b) Ownership or control: Contracts, instruments or documents relating to the present or future ownership

or control of the licensee or permittee or of the licensee's or permittee's stock, rights or interests therein, relating to changes in such ownership or control shall include but are not limited to the following:

(1) Articles of partnership, association, and incorporation, and changes in such instruments;

(2) Bylaws, and any instruments effecting changes in such bylaws;

(3) Any agreement, document or instrument providing for the assignment of a license or permit, or affecting, directly or indirectly, the ownership or voting rights of the licensee's or permittee's stock (common or preferred, voting or nonvoting), such as:

(i) Agreements for transfer of stock;

(ii) Instruments for the issuance of new stock; or

(iii) Agreements for the acquisition of licensee's or permittee's stock by the issuing licensee or permittee corporation. Pledges, trust agreements, options to purchase stock and other executory agreements are required to be filed. However, trust agreements or abstracts thereof are not required to be filed, unless requested specifically by the FCC. Should the FCC request an abstract of the trust agreement in lieu of the trust agreement, the licensee or permittee will submit the following information concerning the trust:

(A) Name of trust;

(B) Duration of trust;

(C) Number of shares of stock owned;

(D) Name of beneficial owner of stock;

(E) Name of record owner of stock;

(F) Name of the party or parties who have the power to vote or control the vote of the shares; and

(G) Any conditions on the powers of voting the stock or any unusual characteristics of the trust.

(4) Proxies with respect to the licensee's or permittee's stock running for a period in excess of 1 year, and all proxies, whether or not running for a period of 1 year, given without full and detailed instructions binding the nominee to act in a specified manner. With respect to proxies given without full and detailed instructions, a statement showing the number of such proxies, by whom given and received, and the percentage of outstanding stock represented by each proxy shall be submitted by the licensee or permittee within 30 days after the stockholders' meeting in which the stock covered by such proxies has been voted. However, when the licensee or permittee is a corporation having more than 50 stockholders, such complete information need be filed only with respect to proxies given by stockholders who are officers or directors, or who have 1% or more of the corporation's voting stock. When the licensee or permittee is a corporation having more than 50 stockholders and the stockholders giving the proxies are not officers or directors or do not hold 1% or more of the corporation's stock, the only information required to be filed is the name of any person voting 1% or more of the stock by proxy, the number of shares voted by proxy by such person, and the total number of shares voted at the

particular stockholders' meeting in which the shares were voted by proxy.

(5) Mortgage or loan agreements containing provisions restricting the licensee's or permittee's freedom of operation, such as those affecting voting rights, specifying or limiting the amount of dividends payable, the purchase of new equipment, or the maintenance of current assets.

(6) Any agreement reflecting a change in the officers, directors or stockholders of a corporation, other than the licensee or permittee, having an interest, direct or indirect, in the licensee or permittee as specified by § 73.3615.

(c) Personnel:

(1) Management consultant agreements with independent contractors; contracts relating to the utilization in a management capacity of any person other than an officer, director, or regular employee of the licensee or permittee; station management contracts with any persons, whether or not officers, directors, or regular employees, which provide for both a percentage of profits and a sharing in losses; or any similar agreements.

(2) The following contracts, agreements, or understandings need not be filed: Agreements with persons regularly employed as general or station managers or salesmen; contracts with program managers or program personnel; contracts with attorneys, accountants or consulting radio engineers; contracts with performers; contracts with station representatives; contracts with labor unions; or any similar agreements.

(d) The following contracts, agreements, or understandings need not be filed, but shall be kept at that station and made available for inspection upon request by the FCC: Contracts relating to the sale of broadcast time to "time brokers" for resale; subchannel leasing agreements for Subsidiary Communications Authorization operation; time sales contracts with the same sponsor for 4 or more hours per day, except where the length of the events (such as athletic contests, musical programs, and special events) broadcast pursuant to the contract is not under control of the station; and contracts with chief operators and other engineering personnel.

§ 73.3615 Ownership reports.

(a) Each licensee of a commercial AM, FM or TV broadcast station shall file an Ownership Report on FCC Form 323 at the time the application for renewal of station license is required to be filed. Licensees owning more than one AM, FM or TV station need file only one Ownership Report at 3-year intervals. Ownership Reports shall give the following information as of a date not more than 30 days prior to the filing of the Ownership Report:

(1) In the case of an individual, the name of such individual;

(2) In the case of a partnership, the names of the partners and the interest of each partner;

(i) Any change in partners or in their rights will require prior consent of the FCC upon an application for consent to assignment of license or permit. If such change involves less than a controlling interest, the application for FCC consent to such changes may be made upon FCC Form 316.

(3) In the case of a corporation, association, trust, estate, or receivership, the data application to each:

(i) The name, residence, citizenship, and stock holdings of officers, directors, stockholders, trustees, executors, administrators, receivers, and members of any association;

(ii) Full information as to family relationship or business association between two or more officials and/or stockholders, trustees, executors, administrators, receivers, and members of any association;

(iii) Capitalization with a descriptive of the classes and voting power of stock authorized by the corporate charter or other appropriate legal instrument and the number of shares of each class issued and outstanding; and

(iv) Full information on FCC Form 323 with respect to the interest and identity of any person having any direct, indirect, fiduciary, or beneficiary interest in the licensee or any of its stock. For example:

(A) Where A is the beneficial owner or votes stock held by B, the same information should be furnished for A as is required for B.

(B) Where X corporation controls the licensee, or holds 25% or more of the number of issued and outstanding shares of either voting or non-voting stock of the licensee, the same information should be furnished with respect to X corporation (its capitalization, officers, directors, and stockholders and the amount of stock [by class] in X held by each) as is required in the case of the licensee, together with full information as to the identity and citizenship of the person authorized to vote licensee's stock, in case of voting stock.

(C) The same information should be furnished as to Y corporation if it controls X corporation or holds 25% or more of the number of issued and outstanding shares of either voting or non-voting stock of X, and as to Z corporation if it controls Y corporation or holds 25% or more of the number of issued and outstanding shares of either voting or non-voting stock of Y and so on back to natural persons.

(4) In the case of all licensee:

(i) A list of all contracts still in effect required to be filed with the FCC by § 73.3613 showing the date of execution and expiration of each contract; and

(ii) Any interest which the licensee may have in any other broadcast station.

(b) Each permittee of a commercial AM, FM or TV broadcast station shall file an Ownership Report on FCC Form 323 within 30 days of the date of grant by the FCC of an application for original construction permit. The Ownership Report of the permittee shall give the information required by the applicable portions of paragraph (a) of this Section.

(c) Except as provided in (d) below, a supplemental Ownership Report on FCC Form 323 shall be filed by each licensee or permittee within 30 days after any change occurs in the information required by the Ownership Report from that previously reported. Such report shall include without limitation:

(1) Any change in capitalization or organization;

(2) Any change in officers and directors;

(3) Any transaction affecting the ownership, direct or indirect, or voting rights of licensee's or permittee's stock, such as:

(i) A transfer of stock;

(ii) Issuance of new stock or disposition of treasury stock; or

(iii) Acquisition of licensee's or permittee's stock by the issuing corporation.

(4) Any change in the officers, directors, or stockholders of a corporation other than the licensee or permittee such as X, Y, or Z corporation described in the example in paragraph (a) (3) (iv) of this Section.

(5) Before any change is made in the organization, capitalization, officers, directors, or stockholders of a corporation other than licensee or permittee, which results in a change in the control of the licensee or permittee, prior FCC consent must be received under § 73.3540. A transfer of control takes place when an individual or group in privity, gains or loses affirmative or negative (50%) control. See instructions on FCC Form 323 (Ownership Report).

(d) Annual reporting and 1 percent benchmark exceptions:

(1) Where information is required under paragraphs (a) or (b) of this Section with respect to a corporation or association having more than 50 stockholders or members, such information must be filed annually as set forth in (d) (2) below and only with respect to stockholders or members who are officers or directors of the corporation or association, or to other stockholders or members who have 1% or more of either the voting or non-voting stock of the corporations or voting rights in the association. Such information with respect to stock held by stockholders need be filed only if the stock is held by the stockbroker in its name (either for itself or for customers) for a period exceeding 30 days.

(2) All corporate licensees having more than 50 voting or non-voting shareholders, or controlling corporation, or corporations holding 25% or more of the outstanding voting or non-voting stock of the licensee, are required under this paragraph (d) to file annually. Filings must be made on a recurring annual basis, within 60 days from the anniversary of the record date selected in the first report for stockholders.

(3) Corporations covered in this paragraph do not have to file supplemental Ownership Reports as described in (c) above.

(e) Each licensee of a noncommercial educational AM, FM or TV broadcast station shall file an Ownership Report on FCC Form 323-E at the time the appli-

cation for renewal of station license is required to be filed. Licensees owning more than one noncommercial educational AM, FM or TV broadcast station need file only one Ownership Report at 3-year intervals. Ownership Reports shall give the following information as of a date not more than 30 days prior to the filing of the Ownership Report:

(1) The following information as to all officers, members of governing board, and holders of 1% or more ownership interest (if any): Name, residence, office held, citizenship, principal profession or occupation, and by whom appointed or elected.

(2) Full information with respect to the interest and identity of any individual, organization, corporation, association, or any other entity which has direct or indirect control over the licensee or permittee.

(3) A list of all contracts still in effect required by § 73.3613 to be filed with the FCC, showing the date of execution and expiration of each contract.

(4) Any interest which the licensee or permittee or any of its officers, members of the governing board, and holders of 1% or more ownership interest (if any) held in any other broadcast station.

(f) Each permittee of a noncommercial educational AM, FM or TV broadcast station shall file an Ownership Report on FCC Form 323-E within 30 days of the date of grant by the FCC of an application for original construction permit. The Ownership Report of the permittee shall give the information required by the applicable portions of paragraph (e) above.

(g) A supplemental Ownership Report on FCC Form 323-E shall be filed by each licensee or permittee within 30 days after any change occurs in the information required by the Ownership Report from that previously reported. Such report should include, without limitation:

(1) Any change in organization;

(2) Any change in officers or directors;

(3) Any transaction affecting the ownership (direct or indirect) or voting rights with respect to the licensee or permittee (or with respect to any stock interest therein).

(h) A copy of all ownership and supplemental ownership reports and related materials filed pursuant to this Section shall be maintained and made available for public inspection locally as required by §§ 73.3526 and 73.3527.

**§ 73.4000 Listing of FCC Policies.**

The following Sections list, solely for the purpose of reference and convenience, certain Policies of the FCC. The present listing of FCC policies and citations thereto should not be relied upon as an all-inclusive list, and the failure to include a policy in this list does not affect its validity. Each Section bears the title of one Policy and the citations which will direct the user to the specific document(s) pertaining to that Policy.

**§ 73.4005 Advertising—refusal to sell.**

See 412 U.S. 94 (Supreme Court, 1973).

**§ 73.4010 Advertising time—amount of.**

See FCC Rules: Volume I, Part I, § 0.281, Authority delegated.

**§ 73.4015 Alcoholic beverage advertising.**

See letter to Senator Edwin C. Johnson, released August 5, 1949. 43 F.C.C. 446.

**§ 73.4020 Ascertainment (and annual list of problems and needs).**

See Report and Order, Docket 19715, FCC 75-1361, adopted December 15, 1975. 57 F.C.C. 2d 418; 41 F.R. 1372, January 7, 1976.

**§ 73.4021 Ascertainment evaluations by FCC.**

See Public Notice, FCC 79-332, dated June 8, 1979. 72 F.C.C. 2d —; 44 F.R. 33153, June 18, 1979.

**§ 73.4025 Ascertainment, Noncommercial educational stations.**

See Report and Order, Docket 19816, FCC 76-234, adopted March 11, 1976. 58 F.C.C. 2d 526; 41 F.R. 12424, March 25, 1976.

**§ 73.4030 Astrology material, Broadcasts of.**

See letter dated March 23, 1972, FCC 72-278. 34 F.C.C. 2d 434.

**§ 73.4035 Audience ratings: Hypoing and survey misuse.**

(a) See Report and Order, Docket 20501, FCC 76-226, adopted March 10, 1976. 58 FCC 2d 513; 41 F.R. 11556, March 19, 1976.

(b) See Public Notice, FCC 65-965, dated October 28, 1965. 1 FCC 2d 1078; 30 F.R. 13887, November 2, 1965.

**§ 73.4040 Audience ratings: Licensee distortion.**

See Public Notice, FCC 77-448, dated June 24, 1977. 65 FCC 2d 413; 42 F.R. 34913, July 7, 1977.

**§ 73.4045 Barter agreements.**

See Order, FCC 72-167, adopted February 16, 1972. 33 FCC 2d 653; 37 F.R. 4009, February 25, 1972.

**§ 73.4050 Children's TV programs.**

See Report and Policy Statement, Docket 19142, FCC 74-1174, adopted October 24, 1974. 50 FCC 2d 1; 39 F.R. 39396, November 6, 1974.

**§ 73.4055 Cigarette advertising.**

See 15 U.S.C. 1335.

**§ 73.4060 Citizen agreements.**

(a) See Report and Order Docket 20495, FCC 75-1359, adopted December 10, 1975, 57 F.C.C. 2d 42; 40 F.R. 49730, December 30, 1975.

(b) See Memorandum Opinion and Order, FCC 78-875, adopted December 21, 1978. 70 F.C.C. 2d 1672.

**§ 73.4065 Combination advertising rates; joint sales practices.**

See Report and Order, Docket 19789, FCC 76-190, adopted February 2, 1976. 59 FCC 2d 894; 41 F.R. 24719, June 18, 1976.

**§ 73.4070 Commercials, False, misleading and deceptive.**

(a) See Public Notice, FCC 61-1316, dated November 7, 1961. 74 FCC 2d 623.

(b) See letter to Center for Law and Social Policy, FCC 71-1098, dated October 26, 1971. 32 FCC 2d 400.

【§ 73.4070 (a) revised eff. 4-30-80; III(80)-1】

**§ 73.4075 Commerical, Loud.**

See Public Notice, FCC 75-880, dated July 29, 1975. 40 F.R. 34188, August 14, 1975. This FCC statement affirms earlier Public Notice, FCC 65-618, dated July 12, 1965. 1 FCC 2d 10; 30 F.R. 8964, July 16, 1965.

**§ 73.4080 Commercials, Program length.**

See "Program length commercials, Applicability of Commission Policies", FCC 74-77, dated January 29, 1974. 44 FCC 2d 985; 39 F.R. 4042, January 31, 1974.

**§ 73.4085 Conflict of interest.**

(a) See letter to Crowell-Collier Broadcasting, adopted December 9, 1966, FCC 66-1137. 14 FCC 2d 358.

(b) See letter to Strauss Communications, Inc., adopted October 1, 1975, FCC 75-1120. 56 FCC 2d 436.

**§ 73.4090 Coverage maps, Use by licensees.**

See letter to Universal Communications, adopted December 17, 1969, FCC 69-1397. 74 FCC 2d 617.

【§ 73.4090 revised eff. 4-30-80; III(80)-1】

**§ 73.4093 Discrete (encoded) 4-channel stereo transmission authority.**

See Report of the Commission, dated August 9, 1972, 72 F.C.C. 2d 792.

**§ 73.4094. Dolby encoder.**

See Public Notice dated July 10, 1974, 72 F.C.C. 2d 790.

**§ 73.4095 Drug lyrics.**

(a) See Public Notice, FCC 71-205, dated March 5, 1971. 28 FCC 2d 409; 36 F.R. 4901, March 13, 1971.

(b) See Memorandum Opinion and Order, FCC 71-428, adopted April 16, 1971. 31 FCC 2d 377; 36 F.R. 8090, April 29, 1971.

**§ 73.4097 EBS attention signal tests on automated programming systems.**

See Public Notice dated March 1, 1979. 72 F.C.C. 2d 780; 44 F.R. 17792, March 23, 1979.

**§ 73.4100 Financial qualifications; new AM and FM stations.**

See Public Notice, FCC 78-556, dated August 2, 1978. 69 FCC 2d 407; 43 F.R. 34841, August 7, 1978.

(T.S. III (80)-1)

**§ 73.4101 Financial qualifications, TV stations.**

See Public Notice, FCC 79-299, dated May 11, 1979. 72 F.C.C. 2d 784; 44 F.R. 29160, May 18, 1979.

**§ 73.4102 FAA communications, Broadcast of.**

See Public Notice, FCC 72-105, dated February 2, 1972. 37 F.R. 3567, February 17, 1972.

**§ 73.4105 Foreign language programs.**

See Memorandum Opinion and Order, FCC 73-269, adopted March 7, 1973. 3 FCC 2d 1037; 38 F.R. 7840, March 23, 1973.

**§ 73.4110 Format changes of stations.**

See Memorandum Opinion and Order, Docket 20682, FCC 76-744, adopted July 28, 1976. 60 FCC 2d 858; 41 F.R. 37153, September 2, 1976.

**§ 73.4115 Fraudulent billing practices.**

(a) See Public Notice, FCC 76-489, dated June 10, 1976. 59 FCC 2d 1268; 41 F.R. 23673, June 11, 1976.

(b) See Report and Order, Docket 20499, FCC 76-488, adopted May 25, 1976, 59 FCC 2d 786; 41 F.R. 23675, June 11, 1976.

(c) See Public Notice, FCC 76-1155, dated December 17, 1976. 62 FCC 2d 568; 41 F.R. 55739, December 22, 1976.

**§ 73.4120 Harassing and threatening phone calls (resulting from station broadcasts).**

See letter to Station WQXL, dated June 24, 1970. 23 FCC 2d 872.

**§ 73.4125 Horse racing information broadcasts.**

See Report and Order, Docket 15040, FCC 64-533, adopted June 17, 1964. 36 FCC 1571; 29 F.R. 8013, June 24, 1964.

**§ 73.4126 Horse racing information SCA transmissions.**

See Memorandum Opinion and Order, FCC 73-296, adopted May 10, 1979. 72 F.C.C. 2d 793.

**§ 73.4130 Horse racing: Off-track and pari-mutuel betting advertising.**

(a) See Declaratory Ruling, FCC 71-1251, adopted December 15, 1971. 32 FCC 2d 705; 36 F.R. 24237, December 22, 1971.

(b) See Memorandum Opinion and Order, FCC 73-355, adopted March 29, 1973. 41 FCC 2d 172; 38 F.R. 9531, April 17, 1973.

(c) See Memorandum Opinion and Order, FCC 73-685, adopted June 27, 1973. 41 FCC 2d 893; 38 F.R. 18487, July 11, 1973.

**§ 73.4135 Interference to TV reception by FM stations.**

See Public Notice, FCC 67-1012, dated August 30, 1967. 74 FCC 2d 619.

【§ 73.4135 revised eff. 4-30-80; III(80)-1】

**§ 73.4140 Minority ownership; tax certificates and distress sales.**

(a) See Public Notice, FCC 78-322, dated May 25, 1978. 68 FCC 2d 979; 43 F.R. 25188, June 9, 1978.

(b) See Public Notice, FCC 78-725, dated October 11, 1978. 43 F.R. 47612, October 16, 1978.

**§ 73.4145 Musical format service companies' agreements with broadcasters.**

See Report and Policy Statement, Docket 19743, FCC 75-1234, adopted November 4, 1975. 56 FCC 2d 805; 40 F.R. 55383, November 28, 1975.

**§ 73.4150 Musical recordings; repetitious broadcasts.**

See letter to Station KRBE, dated May 22, 1973. 40 FCC 2d 1154.

**§ 73.4155 Network clipping.**

See Public Notice, FCC 73-230, dated March 2, 1973. 40 FCC 2d 136; 38 F.R. 6918, March 14, 1973.

**§ 73.4157 Network signals which adversely affect affiliate broadcast service.**

See Public Notice FCC 79-387, dated April 20, 1970. 22 F.C.C. 2d 779.

**§ 73.4160 Night time service areas, Class II and III AM stations; computation.**

See Public Notice, FCC 76-800, dated August 26, 1976. 61 FCC 2d 764; 41 F.R. 36836, September 1, 1976.

**§ 73.4165 Obscene language.**

(a) See Memorandum Opinion and Order, FCC 75-200, adopted February 12, 1975. 56 FCC 2d 94; 40 F.R. 11023, March 11, 1975.

(b) See *FCC v. Pacifica Foundation*,—U.S.—; 57 L. Ed 2d 1073, 98 S. Ct.—; 46 U.S.L.W. 5018 (1978).

(c) See Public Notice, FCC 63-38, dated January 10, 1963. 28 F.R. 417, January 16, 1963.

**§ 73.4170 Obscene lyrics.**

See letter to N. Markovitz dated June 3, 1976. In response number 8310, C 2-1109. Review denied: FCC 76-769, adopted August 5, 1976. 74 FCC 2d 613.

**[§ 73.4170 revised eff. 4-30-80; III(80)-1]**

**§ 73.4175 Off-network programs and feature films: Presentation restrictions.**

See Public Notice, FCC 72-305, dated April 6, 1972. 34 FCC 2d 1099; 37 F.R. 7412, April 14, 1972.

**§ 73.4180 Payment disclosure: Payola, plugola, kickbacks.**

(a) See 47 U.S.C. 508.

(b) See Public Notice, FCC 70-593, dated June 4, 1970. 23 FCC 2d 588; 35 F.R. 9045, June 11, 1970.

**§ 73.4185 Political broadcasting and telecasting, The Law of.**

See Public Notice, FCC 78-523, dated August 16, 1978. 69 FCC 2d 2209; 43 F.R. 3642, August 16, 1978.

**§ 73.4190 Political candidate authorization notice and sponsorship identification.**

See Joint Notice by the Federal Communications Commission and the Federal Election Commission, FCC 78-419, dated June 19, 1978. 69 FCC 2d 1129; 43 F.R. 30126, July 13, 1978.

**§ 73.4195 Political advertising by UHF translators.**

See Public Notice, FCC 76936, dated October 8, 1976. 62 FCC 2d 896; 41 F.R. 45043, October 14, 1976.

**§ 73.4200 Polls, Call-in, on radio and TV stations.**

See letter to Congressman Moss, dated May 15, 1968, FCC 68-553, 13 FCC 2d, 964.

**§ 73.4205 Private interest broadcasts by licensees to annoy and harass others.**

See letter to Station WXTV dated February 9, 1972, FCC 72-131. 33 FCC 2d 840.

**§ 73.4210 Procedure Manual: "The Public and Broadcasting".**

See FCC 74-942, dated September 5, 1974. 49 FCC 2d 1; 39 F.R. 32288, dated September 5, 1974.

**§ 73.4215 Program matter: Supplier identification.**

See Public Notice, FCC 73-595, dated June 1, 1973. 41 FCC 2d 333; 38 F.R. 14979, June 7, 1973.

**§ 73.4220 Promise v. Performance: Commercial announcements.**

(a) See Memorandum Opinion and Order, Docket 14003, adopted July 12, 1961. 31 FCC 85; 26 F.R. 6485, July 18, 1961.

(b) See also *Moline Television Corp., et al*, Docket 17993, FCC 71-837, adopted August 18, 1971. 31 FCC 2d 263.

**§ 73.4225 Promotion of non-broadcast business of a station.**

(a) See letter to Station WADE, dated September 19, 1973, FCC 73-989. 42 F.C.C. 2d 1027.

(b) See letter to Station WJIM-TV, dated July 24, 1968, FCC 68-773, 14 F.C.C. 2d 239.

**§ 73.4230 Sales contracts, Failure to perform.**

See Public Notice, FCC 73-1245, dated November 29, 1973. 43 FCC 2d 978; 38 F.R. 33524, December 5, 1973.

**§ 73.4235 Short spacing agreements: FM stations.**

See Public Notice, FCC 75-1367, dated December 15, 1975. 57 FCC 2d 1263; 40 F.R. 58893, December 19, 1975.

**§ 73.4240 Sirens and like emergency sound effects in announcements.**

See Public Notice, FCC 70-930, dated August 28, 1970. 26 FCC 2d 275; 35 F.R. 14024, September 3, 1970.

**§ 73.4245 Sports announcer selection.**

See Report and Order, Docket 19773, FCC 74-868, adopted July 31, 1974. 48 FCC 2d, 235; 39 F.R. 29222, August 14, 1974.

**§ 73.4250 Subliminal perception.**

(a) See Public Notice, FCC 74-78, dated January 24, 1974. 44 FCC 2d, 1016; 39 F.R. 3714, January 29, 1974.

(b) See FCC Information Bulletin, "Subliminal Projection", dated November 1977.

**§ 73.4255 Tax certificates: Issuance of.**

See Public Notice, FCC 76-337, dated April 21, 1976. 59 FCC 2d, 91; 41 F.R. 17605, April 27, 1976.

**§ 73.4260 Teaser announcements.**

See Public Notice, FCC 62-592, dated June 1, 1962. 27 F.R. 5274, June 5, 1962.

**§ 73.4265 Telephone conversation broadcasts (network and like sources).**

See Memorandum Opinion and Order, FCC 75-1406, adopted December 18, 1975. 57 FCC 2d, 334; 41 F.R. 816, January 5, 1976.

**§ 73.4270 TV broadcast signals: Technical standards.**

(a) See Public Notice, FCC 78-423, dated June 16, 1978. 43 F.R. 36689, August 18, 1978. This FCC statement was modified by Public Notice, FCC 79-10, dated January 10, 1979, 44 F.R. 3774, January 18, 1979.

(b) See also Public Notice, dated July 3, 1979. 72 F.C.C. 2d 786, entitled "Temporary Policy Extending Suspended Enforcement of TV Vertical and Horizontal Blanking Standards."

(c) See also Public Notice, FCC 79-231, dated April 12, 1979, entitled "Temporary Policy Concerning Application of Vertical and Horizontal Standards to In-School ITV Program." 72 F.C.C. 2d 782.

**§ 73.4272 TV colorburst during black and white programming.**

See Memorandum Opinion and Order, FCC 76-223, adopted March 9, 1976. 58 F.C.C. 2d 385.

**§ 73.4275 Tone clusters: Audio attention-getting devices.**

See Public Notice, FCC 76-610, dated July 2, 1976. 60 FCC 2d, 920; 41 F.R. 28582, July 12, 1976.

**§ 73.4280 Violation of laws of USA by station applicants; Commission policy.**

See Report of the Commission, Docket 9572, FCC 51-317, adopted March 28, 1951. 42 F.C.C. 2d 399; 16 F.R. 3187, April 11, 1951.

# RULES AND REGULATIONS

## Part 74

*Experimental, Auxiliary, and  
Special Broadcast, and Other Program  
Distributional Services.*

**MARCH 1980**

**FEDERAL COMMUNICATIONS COMMISSION**





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**AUTHORITY:** §§ 74.1 to 74.1284 issued under sec. 4, 303, 48 Stat. 1086, as amended, 1082, as amended: 47 U.S.C. 154, 303. Interpret or apply secs. 301, 303, 307, 48 Stat. 1081, 1082, as amended, 1083, as amended: 47 U.S.C. 301, 303, 307. Other statutory provisions constituting authority for or interpreted or applied by specific sections are cited to text.

## ADMINISTRATIVE PROCEDURE

## § 74.11 Cross reference.

See Part 1, Subpart D of this chapter for general requirements as to applications, filing of applications, and description of forms; see § 1.1111 of Subpart G of that part for the fees to be paid in connection with applications for facilities in the services covered in this part.

## § 74.12 Notification of filing of applications.

The provisions of § 73.1030 "Notification concerning interference to Radio Astronomy, Research, and Receiving Installations" apply to all stations authorized under this Part of the FCC Rules except the following:

- (a) Mobile remote pickup stations (Subpart D).
- (b) TV pickup stations (Subpart F).
- (c) Low power auxiliary stations (Subpart H).
- (d) Protection for Federal Communications Commission monitoring stations:

(1) Applicants in the vicinity of an FCC monitoring station for a radio station authorization to operate new transmitting facilities or changed transmitting facilities which would increase the field strength produced over the monitoring station over that previously authorized are advised to give consideration, prior to filing applications, to the possible need to protect the FCC stations from harmful interference. Geographical coordinates of the facilities which require protection are listed in Section 0.121(c) of the Commission's Rules. Applications for stations (except mobile stations) which will produce on any frequency a direct wave fundamental field strength of *greater than 10 mV/m* in the authorized bandwidth of service ( $-65.8 \text{ dBW/m}^2$  power flux density assuming a free space characteristic impedance of 120 ohms) at the referenced coordinates, may be examined to determine extent of possible interference. Depending on the theoretical field strength value and existing root-sum-square or other ambient radio field strength levels at the indicated coordinates, a clause protecting the monitoring station may be added to the station authorization.

(2) In the event that calculated value of expected field exceeds  $10 \text{ mV/m}$  ( $-65.8 \text{ dBW/m}^2$ ) at the reference coordinates, or if there is any question whether field strength levels might exceed the threshold value, advance consultation with the FCC to discuss any protection necessary should be considered. Prospective applicants may communicate with: Chief, Field Operations Bureau, Federal Communications Commission, Washington, D.C. 20554, Telephone (202) 632-6980.

(3) Advance consultation is suggested particularly for those applicants who have no reliable data which indicate whether the field strength or power flux density figure indicated would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether an applicant should coordinate:

(i) All stations within 2.4 kilometers (1.5 statute miles).

(ii) Stations within 4.8 kilometers (3 statute miles) with 50 watts or more average effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Monitoring Stations.

(iii) Stations within 16 kilometers (10 statute miles) with 1 kW or more average ERP in the primary plane of polarization in the azimuthal direction of the Monitoring Station.

(iv) Stations within 80 kilometers (50 statute miles) with 25 kW or more average ERP in the primary plane of polarization in the azimuthal direction of the Monitoring Station.

(4) Advance coordination for stations operating above 1000 MHz is recommended only where the proposed station is in the vicinity of a monitoring station designated as a satellite monitoring facility in Section 0.121(c) of the Commission's Rules and also meets the criteria outlined in paragraphs (2) and (3) above.

(5) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Federal Communications Commission or modification of any authorization which will cause harmful interference.

## § 74.13 Equipment tests.

(a) During the process of construction of any class of radio station listed in this part, the permittee, without further authority of the Commission, may conduct equipment tests for the purpose of such adjustments and measurements as may be necessary to assure compliance with the terms of the construction permit, the technical provisions of the application therefor, the technical requirements of this chapter, and the applicable engineering standards.

(b) Equipment tests may be continued so long as the construction permit shall remain valid.

(c) The authorization for tests embodied in this section shall not be construed as constituting a license to operate.

## § 74.14 Service or program tests.

(a) Upon completion of construction of a radio station in accordance with the terms of the construction permit, the technical provisions of the application therefor, technical requirements of this chapter, and applicable engineering standards, and when an application for station license has been filed showing the station to be in satisfactory operating condition, the permittee of any class of station listed in this part may, without further authority of the Commission, conduct service or program tests.

(b) Program test authority for stations authorized under this Part will continue valid during Commission consideration of the application for license and during this period further extension of the construction permit is not required. Program test authority shall be automatically terminated with final action on the application for station license.

(c) The authorization for tests embodied in this section shall not be construed as approval by the Commission of the application for station license.

#### § 74.15 Station license period.

(a) Licenses for the following classes of stations normally will be issued for a period of one year expiring as follows:

(1) Experimental television broadcast station: April 1.

(2) Experimental facsimile broadcast station: March 1.

(3) Developmental broadcast station: May 1.

(b) Licenses for stations or systems in the Auxiliary Broadcast Service held by a licensee of a broadcast station will be issued for a period running concurrently with the license of the associated broadcast station with which it is licensed. Licenses held by eligible networks for the purpose of providing program services to affiliated stations under Subpart D, and by eligible networks, cable television operators, motion picture producers, and television program producers under Subpart H, will be issued for a period running concurrently with the normal licensing period for broadcast stations located in the same area of operation.

(c) The license of an FM broadcast booster station will be issued for a period running concurrently with the license of the FM radio broadcast station (primary station) with which it is used.

(d) Initial licenses for television broadcast translator stations and FM broadcast stations will ordinarily be issued for a period running until the date specified in this section for the State or territory in which the station is located or, if issued after such date, to the next renewal date determined in accordance with this section; and, when renewed, will normally be renewed for 3 years; *Provided, however*, That, if the Commission finds that the public interest, convenience, or necessity will be served, it may issue either an initial license or a renewal thereof for a lesser term. The time of expiration of normally issued initial and renewed licenses will be 3 a.m., local time, on the following dates, and at 3-year intervals thereafter:

(1) For stations located in Nevada, February 1, 1980.

(2) For stations located in California, April 1, 1980.

(3) For stations located in Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Delaware, West Virginia, Ohio, and the District of Columbia, June 1, 1980.

(4) For stations located in Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Missouri, Kentucky, Ten-

nessee, Indiana, Illinois, Michigan, Wisconsin, Puerto Rico, and the Virgin Islands, August 1, 1983.

(5) For stations located in Oklahoma and Texas, October 1, 1983.

(6) For stations located in Kansas and Nebraska, December 1, 1983.

(7) For stations located in Iowa and South Dakota, February 1, 1984.

(8) For stations located in Minnesota and North Dakota, April 1, 1984.

(9) For stations located in Wyoming, June 1, 1981.

(10) For stations located in Montana, August 1, 1984.

(11) For stations located in Idaho, October 1, 1984.

(12) For stations located in Washington, December 1, 1984.

(13) For stations located in Oregon, February 1, 1982.

(14) For stations located in Alaska, American Samoa, Guam, and Hawaii, April 1, 1982.

(15) For stations located in Colorado, June 1, 1982.

(16) For stations located in New Mexico, August 1, 1982.

(17) For stations located in Utah, October 1, 1982.

(18) For stations located in Arizona, December 1, 1982.

NOTE: For the cutoff date for the filing of applications mutually exclusive with, and petitions to deny, renewal applicants, see § 73.3516(e) of this chapter.

(e) [Reserved]

(f) Licenses for instructional television fixed stations will be issued for a period of 5 years beginning with the date of the grant.

【§ 74.15 headnote and (d) (14) revised eff. 4-30-80; III(80)-1】

#### § 74.16 Temporary extension of station licenses.

Where there is pending before the Commission any application, investigation, or proceeding which, after hearing, might lead to or make necessary the modification of, revocation of, or the refusal to renew an existing auxiliary or experimental broadcast station license or a television broadcast translator station license, the Commission, in its discretion, may grant a temporary extension of such license: *Provided, however*, That no such temporary extension shall be construed as a finding by the Commission that the operation of any radio station thereunder will serve public interest, convenience, and necessity beyond the express terms of such temporary extension of license: *And provided further*, That such temporary extension of license will in no wise affect or limit the action of the Commission with respect to any pending application or proceeding.

## SPECIAL PROVISIONS

## § 74.21 Broadcasting emergency information.

(a) In an emergency where normal communication facilities have been disrupted or destroyed by storms, floods, or other disasters, the stations licensed under this part may be operated for the purpose of transmitting essential communications intended to alleviate distress, dispatch aid, assist in rescue operations, maintain order, or otherwise promote the safety of life and property. In the course of such operation, a station of any class may communicate with stations of other classes and in other services. However, such operation shall be conducted only on the frequency or frequencies for which the station is licensed and the power used shall not exceed the maximum authorized in the station license. When such operation involves the use of frequencies shared with other stations, licensees are expected to cooperate fully to avoid unnecessary or disruptive interference.

(b) Whenever such operation involves communications of a nature other than those for which the station is licensed to perform, the licensee shall, at the earliest practicable time, notify the Commission in Washington, D.C., and the Engineer in Charge of the radio district in which the operation occurs, of the nature of the emergency and the use to which the station is being put and shall subsequently notify the same offices when the emergency operation has been terminated.

(c) Emergency operation undertaken pursuant to the provisions of this section shall be discontinued as

soon as substantially normal communications facilities have been restored. The Commission may at any time order discontinuance of such operation.

## § 74.22 Use of common antenna structure.

The simultaneous use of a common antenna structure by more than one station authorized under this part, or by one or more such stations and one or more stations of any other service may be authorized, *Provided*, That each licensee or permittee using such structure shall be responsible for painting and lighting of the structure when obstruction marking is required by the Commission. However, each such licensee or permittee utilizing a common structure may, with the approval of the Commission in Washington, designate one of the licensees or permittees as responsible for painting and lighting the structure. Pursuant to Commission approval, such designated licensee or permittee shall be solely responsible for conforming to all Commission requirement of Part 17 of this Chapter regarding obstruction marking and lighting of antenna structures. (See §§ 17.47 through 17.56.) Requests for such approval shall be submitted in letter form, accompanied by copies of agreements between all participating licensees or permittees. A copy of the agreement and the Commission approval must be retained in each licensee's or permittee's station file, available for inspection by FCC representatives. In the event of default by the designated licensee of his responsibility, each of the licensees or permittees shall again be individually responsible for conforming to the requirements of the rules, pending Commission approval of a new agreement.



## SUBPART A—EXPERIMENTAL TELEVISION BROADCAST STATIONS

### DEFINITIONS AND ALLOCATION OF FREQUENCIES

#### § 74.101 Experimental television broadcast station.

The term “experimental television broadcast station” means a station licensed for experimental transmission of transient visual images of moving or fixed objects for simultaneous reception and reproduction by the general public.

NOTE: The transmission of synchronized sound (aural broadcast) is considered an essential phase of television broadcast and one license will authorize both visual and aural broadcast.

#### § 74.102 Purpose.

A license for an experimental television broadcast station will be issued for the purpose of carrying on research and experimentation for the advancement of television broadcasting which may include tests of equipment, training of personnel, and experimental programs as are necessary for the experimentation.

#### § 74.103 Frequency assignment.

(a) Frequencies allocated to television broadcasting and the various categories of television auxiliary stations, in the Commission’s Table of Frequency Allocations (Part 2 of this Chapter), may be assigned respectively to experimental television broadcast and experimental television auxiliary stations.

(b) More than one frequency may be assigned upon a satisfactory showing of the need therefor.

(c) Frequencies best suited to the purpose of the experimentation and on which there appears to be the least likelihood of interference to established stations shall be selected.

(d) In a case of important experimentation which cannot be feasibly conducted on frequencies allocated to television broadcasting or the various categories of television auxiliary stations, the Commission may authorize an experimental television station of any class to operate on other frequencies upon a satisfactory showing of the need therefor and a showing that the proposed operation can be conducted without causing harmful interference to established services: *Provided, however,* That experimental operation which looks toward the development of radio transmitting apparatus or the rendition of any type of regular service using such frequencies will not be authorized prior to a determination by the Commission that the development of such apparatus or the rendition of such service would serve the public interest.

### ADMINISTRATIVE PROCEDURE

#### § 74.112 Supplementary statement with application for construction permit.

A supplementary statement shall be filed with and

made a part of each application for construction permit for any experimental television broadcast station confirming the applicant’s understanding:

(a) That all operation upon the frequency requested is for experimental purposes only.

(b) That the frequency requested may not be the best suited to the particular experimental work to be carried on.

(c) That the frequency requested need not be allocated for any service that may be developed as a result of the experimental operation.

(d) That any frequency which may be assigned is subject to change without advance notice or hearing.

(e) That any authorization issued pursuant to the application may be cancelled at any time without notice or hearing.

(Sec. 319, 48 Stat. 1089, as amended; 47 U.S.C. 319)

#### § 74.113 Supplementary reports with application for renewal of license.

(a) A report shall be filed with each application for renewal of experimental television broadcast station license which shall include a statement of each of the following:

(1) Number of hours operated.

(2) Full data on research and experimentation conducted including the types of transmitting and studio equipment used and their mode of operation.

(3) Data on expense of research and operation during the period covered.

(4) Power employed, field intensity measurements and visual and aural observations and the types of instruments and receivers utilized to determine the station service area and the efficiency of the respective types of transmissions.

(5) Estimated degree of public participation in reception and the results of observations as to the effectiveness of types of transmission.

(6) Conclusions, tentative and final.

(7) Program for further developments in television broadcasting.

(8) All developments and major changes in equipment.

(9) Any other pertinent developments.

(b) Special or progress reports shall be submitted from time to time as the Commission shall direct.

(Sec. 308, 48 Stat. 1084, as amended; 47 U.S.C. 308)

### LICENSING POLICIES

#### § 74.131 Licensing requirements, necessary showing.

(a) An applicant for a new experimental television broadcast station, change in facilities of any existing station, or modification of license is required to make a satisfactory showing of compliance with the general requirements of the Communications Act of 1934, as amended, as well as the following:

(1) That the applicant has a definite program of research and experimentation in the technical phases of television broadcasting which indicates reasonable promise of substantial contribution to the developments of the television art.

(2) That upon the authorization of the proposed station the applicant can and will proceed immediately with its program of research and experimentation.

(3) That the transmission of signals by radio is essential to the proposed program of research and experimentation.

(4) That the program of research and experimentation will be conducted by qualified personnel.

(b) A license for an experimental television broadcast station will not authorize exclusive use of any frequency. In case interference would be caused by simultaneous operation of stations licensed experimentally, such licensees shall endeavor to arrange satisfactory time division. If such agreement cannot be reached, the Commission will determine and specify the time division.

(c) A license for an experimental television broadcast station will be issued only on the condition that no objectionable interference will result from the transmissions of the station to the regular program transmissions of television broadcast stations. It shall at all times be the duty of the licensee of an experimental television broadcast station to ascertain that no interference will result from the transmissions of its station. With regard to interference with the transmissions of an experimental television broadcast station or the experimental or test transmissions of a television broadcast station, the licensees shall make arrangements for operations to avoid interference.

#### § 74.132 Power limitations.

Experimental television broadcast stations will be licensed with a power output not in excess of that necessary to render satisfactory service. The license for these stations will specify the maximum authorized power. The operating power shall not be greater than necessary to carry on the service and in no event more than 5 percent above the maximum power specified. Engineering standards have not been established for these stations. The efficiency factor for the last radio stage of transmitters employed will be subject to individual determination but shall be in general agreement with values normally employed for similar equipment operated within the frequency range authorized.

#### § 74.133 Emission authorized.

In case emission of a different type than that specified in the license is necessary or desirable in carrying on any phases of experimentation, application setting out fully the needs shall be made by informal application.

#### § 74.134 Multiple ownership.

No persons (including all persons under common control) shall control, directly or indirectly, two or

more experimental television broadcast stations (other than television relay broadcast stations) unless a showing is made that the character of the programs of research requires a licensing of two or more separate stations.

### EQUIPMENT

#### § 74.151 Equipment changes.

The licensee of an experimental television broadcast station may make any changes in the equipment that are deemed desirable or necessary provided:

(a) That the operating frequency is not permitted to deviate more than the allowed tolerance;

(b) That the emissions are not permitted outside the authorized band;

(c) That the power output complies with the license and the regulations governing the same; and

(d) That the transmitter as a whole or output power rating of the transmitter is not changed.

### TECHNICAL OPERATION AND OPERATORS

#### § 74.161 Frequency tolerance.

The licensee of an experimental television broadcasting station shall maintain the operating frequency of its station within the tolerance specified in the instrument of authorization.

#### § 74.162 Frequency monitors and measurements.

The licensee of an experimental television broadcast station shall provide the necessary means for determining that the frequency of the station is within the allowed tolerance. The date and time of each frequency check, the frequency as measured, and a description or identification of the method employed shall be entered in the station log. Sufficient observations shall be made to insure that the assigned carrier frequency is maintained within the prescribed tolerance.

#### § 73.163 Time of operation.

(a) A licensee of an experimental television broadcast station is not required to adhere to a regular schedule of operation but shall actively conduct a program of research and experimentation.

(b) The program of research and experimentation as offered by an applicant in compliance with the requirements for obtaining a license for an experimental television broadcast station shall be adhered to in the main, unless the licensee is authorized to do otherwise by the Commission.

(c) The Commission may from time to time require that a station licensed experimentally conduct such experiments as are deemed desirable and reasonable for the development of the service.

#### § 74.164 Station inspection.

The licensee of each experimental television broadcast station shall make the station available for inspection by representatives of the Commission at any reasonable hour.

### § 74.165 Station and operator licenses; posting of.

(a) The station license and any other instrument of authorization or individual order concerning the construction of the equipment or manner of operation of the station shall be posted so that all terms thereof are visible in a conspicuous place in the room in which the transmitter is located. However, if the station is licensed for portable-mobile operation, the station license or a photo copy thereof shall be affixed to the equipment or kept in the possession of the operator on duty at the transmitter. If a photo copy is used, the original license shall be available for inspection by an authorized Government representative.

(b) The original license of each station operator shall be posted at the place where he is on duty: *Provided, however,* If the original license of a station operator is posted at another radio transmitting station in accordance with the rules governing that class of station and is there available for inspection by an authorized Commission representative, or if the station operated is licensed for portable-mobile operation, a verification card (Form 758-F) is acceptable in lieu of the posting of such license.

NOTE: The term portable-mobile as here used is intended to include any type of portable or mobile operation.

### § 74.166 Operator requirements.

One or more radio operators holding Radiotelephone First-Class or radiotelephone Second-Class Operator licenses shall be on duty at the place where the transmitting apparatus of any experimental television broadcast station is located and in actual charge of its operation. The licensed operator on duty and in charge of a broadcast transmitter may, at the discretion of the licensee, be employed for other duties or for the operation of another station or stations in accordance with the class of operator's license which he holds and the rules and regulations governing such stations. However, such duties shall in no wise interfere with the operation of the broadcast transmitter.

(Sec. 318, 48 Stat. 1089, as amended; 47 U.S.C. 318)

### § 74.167 Antenna structure, marking and lighting.

The painting and lighting of antenna structures employed by stations licensed under this subpart, where required, will be specified in the authorization issued by the Commission. Section 74.22 and Part 17 of this Chapter set forth the conditions under which painting and lighting will be required and the responsibility of the licensee with regard thereto.

### § 74.168 Additional orders.

In case the rules contained in this part do not cover all phases of operation or experimentation with respect to external effects, the Commission may make supplemental or additional orders in each case as may be deemed necessary.

## OTHER OPERATING REQUIREMENTS

### § 74.181 Logs.

(a) The licensee of each experimental television broadcast station shall maintain adequate records of the operation, including:

- (1) Hours of operation.
- (2) Program transmitted.
- (3) Frequency check.
- (4) Pertinent remarks concerning transmission.

(5) In case of relay or pickup station, an entry giving points of program origination and receiver location shall be included.

- (6) Research and experimentation conducted.

(b) Entries required by § 17.49 (a), (b), and (c) of this Chapter concerning the time the tower lights are turned on and off each day if manually controlled, the time the daily check of proper operation of the tower lights was made if automatic alarm system is not provided, and any observed failure of the lighting system. See § 17.47 (a) for daily tower lighting observation or automatic alarm system requirements.

(c) Entries required by § 17.49 (d) of this Chapter concerning quarterly inspections of the condition of the tower lights and associated control equipment; when adjustments, replacement or repairs are made to insure compliance with the lighting requirements; and when towers are cleaned or repainted as required by § 17.50 of this Chapter.

(d) Station logs and records shall be retained for a period of two years.

### § 74.182 Charges.

No charges, either direct or indirect, shall be made by the licensee of an experimental television broadcast station for the production or transmission of either aural or visual programs transmitted by such station except that this section shall not apply to the transmission of commercial programs by an experimental television relay or pickup broadcast station for retransmission by a television broadcast station.

### § 74.183 Station identification.

Each experimental television broadcast station shall make aural and visual announcements of its call letters and location at the beginning and end of each period of operation, and during operation, at least once every hour.

### § 74.184 Rebroadcasts.

(a) The term "rebroadcast" means reception by radio of the program of a radio station (including a television station), and the simultaneous or subsequent retransmission of such program by a broadcast station.

NOTE 1: As used in this section, the word "program" includes any complete program or part thereof.

NOTE 2: In case a program is transmitted from its point of origin to a broadcast station primarily by telephone facilities in which a section of such transmission is by radio, the broadcasting of this program is not considered a rebroadcast. The broadcasting of a program relayed by a remote pickup broadcast station is not considered a rebroadcast.

(b) No licensee of any experimental television broadcast station shall rebroadcast the program of any radio station without written authority having first been obtained from the Commission upon application. Informal application may be employed.

(c) An application for authority to rebroadcast the program of any radio station shall be accompanied by written consent or certification of consent of the licensee of the station originating the program.

(Sec. 325, 48 Stat. 1091; 47 U.S.C. 325)

## SUBPART B—EXPERIMENTAL FACSIMILE BROADCAST STATIONS

### DEFINITIONS AND ALLOCATION OF FREQUENCIES

#### § 74.201 Facsimile broadcast station.

The term "facsimile broadcast station" means a station licensed to transmit images of still objects for record reception by the general public.

#### § 74.202 Frequency assignment.

(a) Frequencies allocated to broadcasting and the various categories of broadcast auxiliary stations, in the Commission's Table of Frequency Allocations (Part 2 of this Chapter), may be assigned respectively to experimental facsimile broadcast or experimental facsimile broadcast auxiliary stations.

(b) More than one frequency may be assigned upon a satisfactory showing of the need.

(c) Frequencies best suited for experimentation and on which there appears to be the least likelihood of interference to established stations shall be selected.

(d) In a case of important experimentation which cannot be feasibly conducted on frequencies allocated to broadcasting or the various categories of broadcast auxiliary stations, the Commission may authorize an experimental facsimile broadcast station of any class to operate on other frequencies upon a satisfactory showing of the need therefor and that the proposed operation can be conducted without causing harmful interference to established services: *Provided, however*, That experimental operation which looks toward the development of radio transmitting apparatus or the rendition of any type of regular service using such frequencies will not be authorized prior to a determination by the Commission that the development of such apparatus or the rendition of such service would serve the public interest.

#### § 74.212 Supplementary statement with application for construction permit.

A supplementary statement shall be filed with and made a part of each application for construction permit for any experimental facsimile broadcast station confirming the applicant's understanding that:

(a) All operation upon the frequency requested is for experimental purposes only.

(b) The frequency requested may not be the best suited to the particular experimental work to be carried on.

(c) The frequency requested need not be allocated for any service that may be developed as a result of the experimental operation.

(d) Any frequency which may be assigned is subject to change without advance notice or hearing.

(e) Any authorization issued pursuant to the application may be cancelled at any time without notice or hearing.

#### § 74.213 Supplemental report with renewal application.

A supplemental report shall be filed with and made a part of each application for renewal of license and shall include statements of the following:

(a) Number of hours operated for transmission of facsimile programs.

(b) Comprehensive report of research and experimentation conducted.

(c) Conclusions and program for further developments of the facsimile broadcast service.

(d) All developments and major changes in equipment.

(e) Any other pertinent developments.

### LICENSING POLICIES

#### § 74.231 Licensing requirements, necessary showing.

(a) An applicant for a construction permit for a new experimental facsimile broadcast station, change in facilities of any existing station, or modification of license is required to make a satisfactory showing of compliance with the general requirements of the Communications Act of 1934, as amended, as well as with regard to the following:

(1) The applicant has a program of research and experimentation which indicates reasonable promise of substantial contribution to the development of the facsimile broadcast service.

(2) Sufficient facsimile recorders will be distributed to accomplish the experimental program proposed.

(3) The program of research and experimentation will be conducted by qualified personnel.

(b) A license for an experimental facsimile broadcast station will not authorize exclusive use of any frequency. In case interference would be caused by simultaneous operation of stations licensed experimentally, such licensees shall endeavor to arrange satisfactory time division. If such agreement cannot be reached, the Commission will determine and specify the time division.

#### § 74.232 Power limitations.

Experimental facsimile broadcast stations will be licensed with a power output not in excess of that necessary to render satisfactory service. The license for these stations will specify the maximum authorized power. The operating power shall not be greater than necessary to carry on the service and in no event more than 5 percent above the maximum power specified. Engineering standards have not been established for these stations. The efficiency factor for the last radio stage of transmitters employed will be

subject to individual determination and in general agreement with values normally employed for similar equipment operated within the frequency range authorized.

**§ 74.233 Emission authorized.**

In case emission of a different type than that specified in the license is necessary or desirable in carrying on any phases of experimentation, application setting out the needs fully shall be made by informal application.

**§ 74.234 Multiple ownership.**

No persons (including all persons under common control) shall control, directly or indirectly, two or more experimental facsimile broadcast stations unless a showing is made that the character of the programs of research requires a licensing of two or more separate stations.

**EQUIPMENT**

**§ 74.251 Equipment changes.**

The licensee of an experimental facsimile broadcast station may make any changes in the equipment that are deemed desirable or necessary provided:

- (a) The operating frequency is not permitted to deviate more than the allowed tolerance;
- (b) The emissions are not permitted outside the authorized band;
- (c) The power output complies with the license and the regulations governing the same; and
- (d) The transmitter as a whole or output power rating of the transmitter is not changed.

**TECHNICAL OPERATION AND OPERATORS**

**§ 74.261 Frequency tolerance.**

The licensee of an experimental facsimile broadcast station shall maintain the operating frequency of its station within the tolerance specified in the instrument of authorization.

**§ 74.262 Frequency monitors and measurements.**

The licensee of an experimental facsimile broadcast station shall provide the necessary means for determining that the frequency of the station is within the allowed tolerance. The date and time of each frequency check, the frequency as measured, and a description or identification of the method employed shall be entered in the station log. Sufficient observations shall be made to insure that the assigned carrier frequency is maintained within the prescribed tolerance.

**§ 74.263 Time of operation.**

(a) A licensee of an experimental facsimile broadcast station is not required to adhere to a regular schedule of operation but shall actively conduct a program of research and experimentation.

(b) The program of research and experimentation as offered by an applicant in compliance with the requirements for obtaining a license for an experimental facsimile broadcast station shall be adhered to in the main, unless the licensee is authorized to do otherwise by the Commission.

(c) The Commission may from time to time require that a station licensed experimentally conduct such experiments as are deemed desirable and reasonable for the development of the service.

**§ 74.264 Station inspection.**

The licensee of each experimental facsimile broadcast station shall make the station available for inspection by representatives of the Commission at any reasonable hour.

**§ 74.265 Station and operator licenses; posting of.**

(a) The station license and any other instrument of authorization or individual order concerning the construction of the equipment or manner of operation of the station shall be posted in a conspicuous place in the room in which the transmitter is located.

(b) The original license of each station operator shall be posted at the place where he is on duty: *Provided, however,* If the original license of a station operator is posted at another radio transmitting station in accordance with this chapter as concerns that class of station and is there available for inspection by an authorized Commission representative, a verification card (Form 758-F) is acceptable in lieu of the posting of such license.

**§ 74.266 Operator requirements.**

One or more radio operators holding radio-telephone first-class or second-class operator licenses shall be on duty at the place where the transmitting apparatus of any experimental facsimile broadcast station is located and in actual charge of its operation. The licensed operator on duty and in charge of a broadcast transmitter may, at the discretion of the licensee, be employed for other duties or for the operation of another station or stations in accordance with the class of operator's license which he holds and this chapter as concerns such stations. However, such duties shall in no wise interfere with the operation of the broadcast transmitter.

**§ 74.267 Antenna structure, marking and lighting.**

The painting and lighting of antenna structures employed by stations licensed under this subpart, where required, will specified in the authorization issued by the Commission. Section 74.22 and Part 17 of this Chapter set forth the conditions under which painting and lighting will be required and the responsibility of the licensee with regard thereto.

**§ 74.268 Additional orders.**

If the rules in this part do not cover all phases of operation or experimentation with respect to external effects, the Commission may make supplemental or additional orders in each case as may be deemed necessary.

#### OTHER OPERATING REQUIREMENTS

##### § 74.281 Logs.

(a) The licensee of each experimental facsimile broadcast station shall maintain adequate records of the operation, including:

- (1) Hours of operation.
- (2) Program transmitted.
- (3) Frequency check.
- (4) Pertinent remarks concerning transmission.
- (5) Research and experimentation conducted.

(b) Entries required by § 17.49 (a), (b), and (c) of this Chapter concerning the time the tower lights are turned on and off each day if manually controlled, the time the daily check of proper operation of the tower lights was made if automatic alarm system is not provided, and any observed failure of the lighting system. See § 17.47 (a) for daily tower lighting observation or automatic alarm system requirements.

(c) Entries required by § 17.49 (d) of this Chapter concerning quarterly inspections of the condition of the tower lights and associated control equipment; when adjustments, replacement or repairs are made to insure compliance with the lighting requirements; and when towers are cleaned or repaired as required by § 17.50 of this Chapter.

(d) Station logs and records shall be retained for a period of two years.

##### § 74.282 Charges.

(a) A licensee of an experimental facsimile broad-

cast station shall not make any charge, directly or indirectly, for the transmission of programs.

(b) No licensee of any AM or FM broadcast station shall make any additional charge, directly or indirectly, for the transmission of some phase of its programs by an associated experimental facsimile broadcast station.

##### § 74.283 Station identification.

Each experimental facsimile broadcast station shall transmit visual information which will permit it to be identified at the beginning and end of each period of operation, and at least once every hour during operation.

##### § 74.284 Rebroadcasts.

(a) The term "rebroadcast" means reception by radio of the program of a radio station (including television station) and the simultaneous or subsequent retransmission of such program by a broadcast station.

NOTE 1: As used in this section, the word "program" includes any complete program or part thereof.

NOTE 2: In case a program is transmitted from its point of origin to a broadcast station primarily by telephone facilities in which a section of such transmission is by radio, the broadcasting of this program is not considered a rebroadcast. The broadcasting of a program relayed by a remote pickup broadcast station is not considered a rebroadcast.

(b) No licensee of any experimental facsimile broadcast station shall rebroadcast the program of any radio station without written authority having first been obtained from the Commission. Informal application may be employed.

(c) An application for authority to rebroadcast the program of any radio station shall be accompanied by written consent or certification of consent of the licensee of the station originating the program.



## SUBPART C—DEVELOPMENTAL BROADCAST STATIONS

### DEFINITIONS AND ALLOCATION OF FREQUENCIES

#### § 74.301 Development broadcast station.

The term "developmental broadcast station" means a station licensed experimentally to carry on development and research primarily in radiotelephony for the advancement of the broadcast services.

#### § 74.302 Frequency assignment.

(a) Frequencies allocated to the various classes of aural broadcasting stations and broadcast auxiliary stations, in the Commission's Table of Frequency Allocations (Part 2 of this Chapter), may be assigned to developmental broadcast stations.

(b) More than one frequency may be assigned upon a satisfactory showing of the need therefor.

(c) Frequencies best suited to the purpose of the experimentation and on which there appears to be the least likelihood of interference to established stations shall be selected.

(d) In a case of important experimentation which cannot be feasibly conducted on frequencies allocated to the various classes of aural broadcasting stations and broadcast auxiliary stations, the Commission may authorize a developmental broadcast station to operate on other frequencies upon a satisfactory showing of the need therefor and that the proposed operation can be conducted without causing harmful interference to established services: *Provided, however*, That experimental operation which looks toward the development of radio transmitting apparatus or the rendition of any type of regular service using such frequencies will not be authorized prior to a determination by the Commission that the development of such apparatus or the rendition of such service would serve the public interest.

#### § 74.312 Supplementary statement with application for construction permit.

A supplementary statement shall be filed with and made a part of each application for construction permit for any developmental broadcast station confirming the applicant's understanding that:

(a) All operation upon the frequency requested is for experimental purposes only.

(b) The frequency requested may not be the best suited to the particular experimental work to be carried on.

(c) The frequency requested need not be allocated for any service that may be developed as a result of the experimental operation.

(d) Any frequency which may be assigned is subject to change without advance notice or hearing.

(e) Any authorization issued pursuant to the application may be cancelled at any time without notice or hearing.

#### § 74.313 Supplemental report with renewal application.

A supplemental report shall be filed with and made a part of each application for renewal of license and shall include statements of the following, among others:

(a) The number of hours operated.

(b) Comprehensive report on research and experiments conducted.

(c) Conclusions and program for further development of the broadcast service.

(d) All developments and major changes in equipment.

(e) Any other pertinent developments.

### LICENSING POLICIES

#### § 74.331 Licensing requirements; necessary showing.

(a) An applicant for a construction permit for a new developmental broadcast station, change of facilities or modification of an existing license, is required to make a satisfactory showing of compliance with the general requirements of the Communications Act of 1934, as amended, as well as to the following:

(1) The applicant has a program of research and experimentation which can best be carried on under the license requested.

(2) The program of research has reasonable promise of substantial contribution to the development of broadcasting.

(3) The program of research and experimentation will be conducted by qualified personnel.

(b) A license for a developmental broadcast station will not authorize exclusive use of any frequency. In case interference would be caused by simultaneous operation of stations licensed experimentally, such licensees shall endeavor to arrange satisfactory time division. If such agreement cannot be reached, the Commission will determine and specify the time division.

#### § 74.332 Power limitations.

Developmental broadcast stations will be licensed with a power output not in excess of that necessary to render satisfactory service. The license for these stations will specify the maximum authorized power. The operating power shall not be greater than necessary to carry on the service and in no event more than 5 percent above the maximum power specified. Engineering standards have not been established for these stations. The efficiency factor for the last radio stage of transmitters employed will be subject to individual determination but shall be in general agreement with values normally employed for similar equipment operated within the frequency range authorized.

**§ 74.333 Emission authorized.**

In case emission of a different type than that specified in the license is necessary or desirable in carrying on any phases of experimentation, application setting out fully the needs shall be made by informal application.

**EQUIPMENT****§ 74.351 Equipment changes.**

The licensee of a developmental broadcast station may make any changes in the equipment that are deemed desirable or necessary provided:

- (a) The operating frequency is not permitted to deviate more than the allowed tolerance;
- (b) The emissions are not permitted outside the authorized band;
- (c) The power output complies with the license and the regulations governing the same; and
- (d) The transmitter as a whole or output power rating of the transmitter is not changed. This limitation shall not apply to developmental broadcast stations licensed to operate in connection with the development and testing of commercial broadcast equipment.

**TECHNICAL OPERATION AND OPERATORS****§ 74.361 Frequency tolerance.**

The licensee of a developmental broadcasting station shall maintain the operating frequency of its station within the tolerance specified in the instrument of authorization.

**§ 74.362 Frequency monitors and measurements.**

The licensee of a developmental broadcast station shall provide the necessary means for determining that the frequency of the station is within the allowed tolerance. The date and time of each frequency check, the frequency as measured, and a description or identification of the method employed shall be entered in the station log. Sufficient observations shall be made to insure that the assigned carrier frequency is maintained within the prescribed tolerance.

**§ 74.363 Time of operation.**

(a) A licensee of a developmental broadcast station is not required to adhere to a regular schedule of operation but shall actively conduct a program of research and experimentation. However, licensees of developmental broadcast stations which are licensed to conduct special intermittent experiments, such as the development and testing of commercial broadcast equipment, are authorized to operate only when there is a need therefor.

(b) The program of research and experimentation as offered by an applicant in compliance with the requirements for obtaining a license for a developmental broadcast station shall be adhered to in the main, unless the licensee is authorized to do otherwise by the Commission.

(c) The Commission may from time to time require that a station licensed experimentally conduct such experiments deemed desirable and reasonable for the development of the service.

**§ 74.364 Station inspection.**

The licensee of each developmental broadcast station shall make the station available for inspection by representatives of the Commission at any reasonable hour.

**§ 74.365 Station and operator licenses; posting of.**

(a) The station license and any other instrument of authorization or individual order concerning the construction of the equipment or manner of operation of the station shall be posted so that all terms are visible in a conspicuous place in the room in which the transmitter is located. If the station is licensed for portable-mobile operation, the station license or a photocopy thereof shall be affixed to the equipment or kept in the possession of the operator on duty at the transmitter. If a photocopy is used, the original license shall be available for inspection by an authorized Government representative.

(b) The original license of each station operator shall be posted at the place where he is on duty: *Provided, however,* If the original license of a station operator is posted at another radio transmitting station in accordance with this Chapter as concerns that class or station and is available there for inspection by an authorized Commission representative, or if the station operated is licensed for portable-mobile operation, a verification card (Form 758-F) is acceptable in lieu of the posting of such license.

NOTE: The term portable-mobile as here used is intended to include any type of portable or mobile operation.

**§ 74.366 Operator requirements.**

One or more radio operators holding radiotelephone first-class or second-class operator licenses shall be on duty at the place where the transmitting apparatus of any developmental broadcast station is located and in actual charge of its operation. The licensed operator on duty and in charge of a broadcast transmitter may, at the discretion of the licensee, be employed for other duties or for the operation of another station or stations in accordance with the class of operator's license which he holds and the technical requirements of this chapter governing such stations. However, such duties shall in no wise interfere with the operation of the broadcast transmitter.

(Sec. 318, 48 Stat. 1089, as amended; 47 U.S.C. 318)

**§ 74.367 Antenna structure, marking and lighting.**

The painting and lighting of antenna structures employed by stations licensed under this Subpart, where required, will be specified in the authorization issued by the Commission. Section 74.22 and Part 17 of this Chapter set forth the conditions under which painting and lighting will be required and the responsibility of the licensee with regard thereto.

§ 74.368 Additional orders.

If the rules contained in this Part do not cover all phases of operation or experimentation with respect to external effects, the Commission may make supplemental or additional orders in each case as may be deemed necessary.

OTHER OPERATING REQUIREMENTS

§ 74.381 Logs.

(a) The licensee of each developmental broadcast station shall maintain adequate records of the operation, including:

- (1) Hours of operation.
- (2) Program transmitted.
- (3) Frequency check.
- (4) Pertinent remarks concerning transmission.

(5) In case of relay or remote pickup station, an entry giving points of program origination and receiver location shall be included.

- (6) Research and experimentation conducted.

(b) Entries required by § 17.49 (a), (b), and (c) of this Chapter concerning the time the tower lights are turned on and off each day if manually controlled, the time the daily check of proper operation of the tower lights was made if automatic alarm system is not provided, and any observed failure of the lighting system. See § 17.47 (a) for daily tower lighting observation or automatic alarm system requirements.

(c) Entries required by § 17.49 (d) of this Chapter concerning quarterly inspections of the condition of the tower lights and associated control equipment; when adjustments, replacement or repairs are made to insure compliance with the lighting requirements; and when towers are cleaned or repainted as required by § 17.50 of this Chapter.

(d) Station logs and records shall be retained for a period of two years.

§ 74.382 Program service; charges prohibited; announcements.

(a) A licensee of a developmental broadcast station shall broadcast programs only when necessary to the experiments being conducted. No regular program service shall be broadcast unless specifically authorized. If the license authorizes the carrying of pro-

grams the developmental broadcast station may transmit the programs of an AM or FM broadcast station or networks provided that during the broadcast a statement is made identifying the station or network originating the program (by giving the call letters of the station or name of the network) and announcing that the program is being broadcast in connection with the experimental operation of a developmental broadcast station.

(b) No licensee of any AM or FM broadcast station shall make any additional charge, directly or indirectly, for the transmission of programs by a developmental broadcast station.

(c) The provisions of paragraphs (a) and (b) of this section shall be applicable to rebroadcasts of the programs of an AM or FM broadcast station or network by a developmental broadcast station.

§ 74.383 Station identification.

Each developmental broadcast station shall announce its call letters at the beginning and end of each period of operation, and at least once every hour during operation.

§ 74.384 Rebroadcasts.

(a) The term "rebroadcast" means reception by radio of the program of a radio station (including a television station) and the simultaneous or subsequent retransmission of such program by a broadcast station.

NOTE 1: As used in this section, the word "program" includes any complete program or part thereof.

NOTE 2: In case a program is transmitted from its point of origin to a broadcast station primarily by telephone facilities in which a section of such transmission is by radio, the broadcasting of this program is not considered a rebroadcast. The broadcasting of a program relayed by a remote pickup broadcast station is not considered a rebroadcast.

(b) No licensee of any developmental broadcast station shall rebroadcast the program of any radio station without written authority having first been obtained from the Commission. Informal application may be employed.

(c) An application for authority to rebroadcast the program of any radio station shall be accompanied by written consent or certification of consent of the licensee of the station originating the program.



**SUBPART D—REMOTE PICKUP  
BROADCAST STATIONS**

DEFINITIONS AND ALLOCATION OF FREQUENCIES

§ 74.401 Definitions.

*Associated broadcasting station(s).* The broadcasting station or stations with which a remote pickup broadcast station or system is licensed as an auxiliary and with which it is principally used.

*Authorized bandwidth.* The occupied or necessary bandwidth, whichever is greater, authorized to be used by a station.

*Automatic relay station.* A remote pickup broadcast base station which is actuated by automatic means and is used to relay transmissions between remote pickup broadcast base and mobile stations, between remote pickup broadcast mobile stations and from remote pickup broadcast mobile stations to broadcasting stations. (Automatic operation is not operation by remote control.)

*Carrier power.* The average power at the output terminals of a transmitter (other than a transmitter having a suppressed, reduced or controlled carrier) during one radio frequency cycle under conditions of no modulation.

*Mean power.* The power at the output terminals of a transmitter during normal operation, averaged over a time sufficiently long compared with the period of the lowest frequency encountered in the modulation. A time of  $\frac{1}{10}$  second during which the mean power is greatest will be selected normally.

*Necessary bandwidth.* For a given class of emission, the minimum value of the occupied bandwidth sufficient to ensure the transmission of information at the rate and with the quality required for the system employed, under specified conditions. Emissions useful for the good functioning of the receiving equipment, as for example, the emission corresponding to the carrier of reduced carrier systems, shall be included in the necessary bandwidth.

*Network entity.* An organization which produces programs available for simultaneous transmission by 10 or more affiliated stations, and having distribution facilities or circuits available to such affiliated stations in service at least 12 hours each day.

*Occupied bandwidth.* The frequency bandwidth such that, below its lower and above its upper frequency limits, the mean power radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

*Operational communications.* Communications concerning the technical and programming operation of a broadcast station and its auxiliaries.

*Remote control operation.* Operation of a base station by a properly designated person on duty at a control position from which the transmitter is not visible but

that position is equipped with suitable controls so that essential functions can be performed therefrom.

*Remote pickup broadcast base station.* A remote pickup broadcast station authorized for operation at a specified location.

*Remote pickup broadcast mobile station.* A remote pickup broadcast station authorized for use while in motion or during halts at unspecified locations. (As used in this Subpart, mobile stations include hand-carried, pack-carried and other portable transmitters.)

*Remote pickup broadcast stations.* A term used in this Subpart to include both remote pickup broadcast base stations and remote pickup broadcast mobile stations.

*Station.* As used in this Subpart, each remote pickup broadcast transmitter, and its associated accessory equipment necessary to the radio communication function, constitutes a separate station.

*Studio.* Any room or series of rooms equipped for the regular production of broadcast programs of various kinds. A broadcasting booth at a stadium, convention hall, church, or other similar place is not considered to be a studio.

*System.* A complete remote pickup broadcast facility consisting of one or more mobile stations and/or one or more base stations authorized pursuant to a single license.

§ 74.402 Frequency assignment.

(a) The following frequencies may be assigned for use by remote pickup broadcast stations:

- (1) *Group A* (kHz): 1606,<sup>1</sup> 1622, 1646.
- (2) *Group D* (MHz): 25.87,<sup>2</sup> 26.15, 26.25, 26.35.  
*Group E* (MHz): 25.91;<sup>2</sup> 26.17, 26.27, 26.37.  
*Group F* (MHz): 25.95;<sup>2</sup> 26.19; 26.29; 26.39.  
*Group G* (MHz): 25.99;<sup>2</sup> 26.21; 26.31; 26.41.  
*Group H* (MHz): 26.03;<sup>2</sup> 26.23; 26.33; 26.43.
- (3) *Group I* (MHz): 26.07;<sup>3</sup> 26.11; 26.45.  
*Group J* (MHz): 26.09;<sup>2</sup> 26.13; 26.47.
- (4) *Group K*<sup>3</sup> (MHz): 152.87<sup>3</sup>, 152.93<sup>3</sup>, 152.99<sup>3</sup>, 153.05<sup>3</sup>, 153.11<sup>3</sup>, 153.17<sup>3</sup>, 153.23<sup>3</sup>, 153.29<sup>3</sup>, 153.35<sup>3</sup>.  
*Group K*<sup>3</sup> (MHz): 161.64<sup>6</sup>; 161.67<sup>5</sup>; 161.70<sup>6</sup>; 161.73<sup>6</sup>; 161.76<sup>5</sup>.
- (5) *Group L* (MHz); 166.25<sup>4</sup>.  
*Group M* (MHz) { 170.15<sup>4</sup> }
- (6) *Group N*<sub>1</sub> (MHz): 450.050; 450.150; 450.250; 450.350; 450.450; 450.550; 455.050; 455.150; 455.250; 455.350; 455.450; 455.550.  
*Group N*<sub>2</sub> (MHz): 450.0875; 450.1125; 450.1875; 450.2125; 450.2875; 450.3125; 450.3875; 450.4125; 450.4875; 450.5125; 450.5875; 450.6125; 455.0875; 455.1125; 455.1875; 455.2125; 455.2875; 455.3125; 455.3875; 455.4125; 455.4875; 455.5125; 455.5875; 455.6125.
- (7) *Group P* (MHz): 450.01<sup>6</sup>; 450.02<sup>6</sup>; 450.98<sup>6</sup>; 450.99<sup>6</sup>; 455.01<sup>6</sup>; 455.02<sup>6</sup>; 455.98<sup>6</sup>; 455.99<sup>6</sup>.
- (8) *Group R* (MHz): 450.650<sup>7</sup>, 450.700<sup>7</sup>, 450.750<sup>7</sup>, 450.800<sup>7</sup>, 450.850<sup>7</sup>, 455.650<sup>7</sup>, 455.700<sup>7</sup>, 455.750<sup>7</sup>, 455.800<sup>7</sup>, 455.850<sup>7</sup>.  
*Group S* (MHz): 450.925<sup>7</sup>, 455.925<sup>7</sup>.

<sup>1</sup> Subject to the condition that no harmful interference is caused to the reception of standard broadcasting stations.

<sup>2</sup> Subject to the condition that no harmful interference is caused to stations in the broadcasting service.

<sup>3</sup> Subject to the condition that no harmful interference is caused to stations operating in accordance with the Table of Frequency Allocations set forth in Part 2 of the Commission's Rules and Regulations. Applications for licenses to use frequencies in this group must include statements showing what procedures will be taken to insure that interference will not be caused to stations in the industrial radio services.

<sup>4</sup> Operation on the frequencies 166.25 MHz and 170.15 MHz is not authorized (i) within the area bounded on the west by the Mississippi River, on the north by the parallel of latitude 37°30' N., and on the east and south by the arc of the circle with center at Springfield, Ill., and radius equal to the air-line distance between Springfield, Ill., and Montgomery, Alabama, subtended between the foregoing west and north boundaries; (ii) within 150 miles of New York City; and (iii) in Alaska or outside the continental United States; and is subject to the condition that no harmful interference is caused to government radio stations in the band 162-174 MHz.

<sup>5</sup> These frequencies may not be used by remote pickup stations in Puerto Rico or the Virgin Islands. In other areas, certain existing stations in the Public Safety and Land Transportation Radio Services have been permitted to continue operation on these frequencies on condition that no harmful interference is caused to remote pickup broadcast stations.

<sup>6</sup> The use of these frequencies is limited to operational communications, including tones for signalling and for remote control and automatic transmission system control and telemetry.

<sup>7</sup> The use of these frequencies is limited to the transmission of program material and cues and orders immediately necessary thereto.

<sup>8</sup> Frequencies in Group K<sub>1</sub> and K<sub>2</sub> will not be licensed to network entities. Frequencies in Group K<sub>1</sub> will not be authorized to new stations for use on board aircraft.

(b) The following frequencies are allocated for assignment to remote pickup broadcast stations in Puerto Rico and the Virgin Islands only:

160.89 MHz, 160.95 MHz, 160.01 MHz, 161.07 MHz, 161.13 MHz, 161.19 MHz, 161.25 MHz, 161.31 MHz, 161.37 MHz.

*NOTE.*—These frequencies are shared with the Land Transportation Radio Service.

(c) For licensing purposes, a single system will consist of transmitters authorized to use the following combinations of frequency groups in a single area:

(1) Group A.

(2) One group from Groups D, E, F, G, or H; and/or either I or J.

(3) Groups K<sub>1</sub> and K<sub>2</sub> and/or either L or M.

(4) Groups N<sub>1</sub> and R.

(5) Group N<sub>2</sub>.

(6) Group P.

(7) Group S.

(d) License applicants shall request assignment of only those frequencies, both in number and channel bandwidth, necessary for satisfactory operation. A licensee may operate a remote pickup broadcast system only if the system is equipped to operate on all assigned frequencies. It is not necessary that each transmitter within a system be equipped to operate on all authorized system frequencies.

(c) Remote pickup broadcast stations or systems will not be granted exclusive frequency assignments. The same frequency or frequencies may be assigned to other licensees in the same area. Applicants for licenses should select the frequencies closest to the lower band edges within a group that will meet operational requirements to promote the orderly and efficient use of the allocated frequencies.

#### § 74.403 Frequency selection to avoid interference.

(a) Where two or more remote pickup broadcast station licensees are authorized to operate on the same frequency or group of frequencies in the same area and when simultaneous operation is contemplated, the licensees shall endeavor to select frequencies or schedule operation in such manner as to avoid mutual interference. If mutual agreement to this effect cannot be reached the Commission shall be notified and it will specify the frequency or frequencies on which each station is to be operated.

(b) The following order of priorities of transmissions shall be observed on all frequencies except those listed in § 74.402(a)(3), (a)(7) and (a)(8):

(1) Communications during an emergency or pending emergency directly related to the safety of life and property.

(2) Program material to be broadcast.

(3) Cues, orders, and other related communications immediately necessary to the accomplishment of a broadcast.

(4) Operational communications.

(5) Tests or drills to check the performance of stand-by or emergency circuits.

#### ADMINISTRATIVE PROCEDURE

##### LICENSING POLICIES AND GENERAL OPERATING REQUIREMENTS

#### § 74.431 Special rules applicable to remote pickup stations.

(a) Remote pickup broadcast mobile stations may be used for the transmission of material from the scene of events which occur outside a studio and for the transmission of cues and orders and other related communications which are necessary to accomplish the broadcast. The program material transmitted by the remote pickup mobile station shall be intended or available for use by the licensee's associated broadcast station or network affiliated stations. The program material may also be transmitted to any other broadcast station. Editing or rearranging of the program material to meet the needs of the broadcast station is not precluded.

(b) A remote pickup broadcast mobile station may communicate with the broadcasting station or stations with which it is operating and with other remote pickup broadcast stations of its licensee. It may also relay the transmissions of other remote pickup broadcast stations of its licensee.

(c) In cases where a remote pickup broadcast mobile station is taken to the scene of an event to be broadcast and the operator-reporter wishes to leave the location of the transmitter in order to move about freely at the scene with a hand-carried or pack-carried transmitter in order to conduct interviews, obtain a better vantage point to view the scene or otherwise more effectively cover the event, the mobile station may be operated as a temporarily unattended automatic relay station subject to the following conditions:

(1) The output power of the hand-carried or pack-carried transmitter shall not exceed 2.5 watts.

(2) The unattended mobile station(s) shall be so equipped that it will only be activated by the carrier of the hand-carried or pack-carried transmitter. The unattended mobile station may also be used to relay transmission directed to the operator of the hand-carried or pack-carried unit; however, the transmitter output power shall not exceed 2.5 watts on an additional frequency used for this relay function.

(3) Unless the operator-reporter is equipped to continuously monitor use of the frequency on which the unattended transmitter operates, while moving about at the scene of the event, he shall make an observation on the frequency before leaving the location of the mobile transmitter to ascertain whether it is in use so as to avoid interference to other users.

(d) A remote pickup broadcast mobile station may be operated in other areas for a period of 30 days or less without prior authority of the Commission: *Provided*, That, no interference is caused to the programming operations of stations licensed in the area of intended operations. It shall be the responsibility of the licensee desiring to operate in other areas to coordinate for the utilization of frequencies with any licensees authorized to use those same frequencies in such other areas.

(e) A remote pickup broadcast base station may be used for the transmission of cues, orders, and instructions to remote pickup broadcast mobile stations in its system for the purpose of dispatching them to the scene where broadcasters may originate and direct their operation on the scene. Cueing may include brief transmission of program material to the remote pickup broadcast mobile station, if necessary. A remote pickup broadcast base station may also be used to relay transmissions, either directly or via an automatic relay station, to and from remote pickup broadcast mobile stations in its system. Remote pickup broadcast base station operating pursuant to § 74.432 (c) (2) and (c) (5) may communicate with other remote pickup broadcast base stations.

(f) Remote pickup broadcast base and mobile stations in Alaska, Guam, Hawaii, Puerto Rico and the Virgin Islands may be used for any purpose related to the programming or technical operation of a broadcasting station, except for transmissions intended for direct reception by the general public.

(g) Remote pickup broadcast base and mobile stations may be used for operational communications:

*Provided*, That, such use is consistent with the priority requirements of § 74.403(b) and: *Provided further*, Operational communications may not be conducted on frequencies listed in § 74.402(a) (8). Operational communications shall be construed to include the transmission of alerting tones of short duration and special signals used for telemetry or control.

(h) In the event of damage or impairment of the regular communication and program circuits of a broadcasting station due to storms, floods, fires, strikes, equipment failures, or other similar causes, authorized remote pickup broadcast base and mobile stations may be used to provide such temporary circuits as may be needed to continue the broadcasting operation, pending the restoration of the regular circuits for a period not exceeding 30 days without further authority from the Commission.

(i) Remote pickup broadcast base and mobile stations associated with broadcasting stations participating in the Emergency Broadcast System, or a similar emergency survival communication system, may be used: (1) To transmit, for broadcasting station use, warning, instructions, and information relating to war, threat of war, a state of public peril or disaster, or other national, state, or local emergency constituting a threat to the safety of life or property; (2) for coordination of effort in connection with such broadcasts; and (3) for periodic tests or drills to ascertain the reliability of the circuit. Drills should not be conducted more than once a week and should be completed as quickly as possible. Individual transmitters may be turned on for alignment, adjustment, and repair whenever necessary. The conduct of a test or drill is subject to the condition that no interference will be caused to remote pickup broadcast base or mobile stations engaged in the transmission of program material, the preparation for such transmission, or other authorized operation.

(j) A licensee may operate two or more authorized remote pickup broadcast stations simultaneously on different authorized frequencies.

(k) Remote pickup broadcast base and mobile stations operated by one licensee may communicate with remote pickup broadcast base and mobile stations operated by another licensee, either directly or via an automatic relay station:

(1) For the purpose of scheduling the use of shared remote pickup broadcast frequencies, in order to minimize potential interference;

(2) When engaged in a pooled remote pickup operation.

(l) Automatic relay stations may be used to relay any authorized transmissions of other remote pickup broadcast stations operating on authorized remote pickup broadcast frequencies, except transmissions of another automatic relay station. Normally such transmission will originate from remote pickup broadcast stations operated by the licensee of the automatic relay station. However, transmissions of remote pickup broadcast stations operated by other licensees on a frequency occupied by an automatic relay station

may be relayed for monitoring purposes to avoid interference which might be caused by actuating the automatic relay station when the frequency on which it would operate is occupied. Operation of the automatic relay station for monitoring observations shall be confined to the brief period necessary to determine whether the monitored frequency is in use.

**§ 74.432 Licensing requirements and procedures.**

(a) A license for a remote pickup broadcast station system will be issued only to the licensee of an AM, FM, noncommercial FM, television, or international broadcast station, or to an eligible network entity. To be eligible, a network entity must provide a program service for simultaneous transmission by 10 or more stations through circuit facilities available for program distribution to each affiliated station at least 12 hours of each day.

(b) A broadcasting station licensee is not limited with respect to the number of remote pickup broadcast stations or systems which may be licensed for operation in a single area.

(c) Remote pickup broadcast stations and systems will be licensed for use of a specified frequency group as designated in § 74.402 as follows:

(1) Base stations may be licensed as automatic relay stations, and, as such, will be separately licensed. An automatic relay station will be licensed to operate only on frequencies listed in § 74.402(a) 6, 7 and 8. Each automatic relay station shall be operated in accordance with the provisions of § 74.436. A licensee may be authorized to operate more than one automatic relay station; however, no more than two frequencies will be assigned a licensee for use by such stations in any single area. Automatic relay stations operating on a frequency listed in § 74.402(a) (6) shall operate in accordance with the priorities prescribed in § 74.403(b).

(2) Base stations may be authorized to provide one-way or two-way voice communications between the studio and transmitter of a broadcast station, the licensee of which is also the licensee of an aural or television broadcast STL station used for program transmission between the same two points, or to provide such voice communications between the point of origin and the termination of an aural or television intercity relay system. One or more fixed stations operated for these purposes will be licensed as a system and a single license will be issued for each such system. Automatic relay systems will not be authorized for use with these systems. Operation of these systems shall be limited to the frequencies listed in Groups I and J of § 74.402(a).

(3) Remote pickup broadcast mobile stations and the principal base station or base stations with which they communicate, excluding automatic relay stations, will be licensed as a system and a single base license will be issued for each such system. Any of the frequencies listed in § 74.402, as available to the location, may be assigned for use by stations in these systems.

(4) In the event a broadcasting station licensee wishes to operate one or more remote pickup broadcast mobile stations only, such station or stations will be licensed as a system and a single license will be issued for each such system. Any of the frequencies listed in § 74.402, as available to the location, may be assigned for use by stations in these systems.

(5) Base stations may be authorized to provide standby program circuits from places where official broadcasts may be made during a war, threat of war, or state of public peril or disaster or other national, state, or local emergency constituting a threat to the safety of life or property; and circuits to interconnect broadcasting stations participating in the Emergency Broadcast System or a similar emergency survival communication system. Each such station will be licensed separately. An applicant may request the assignment of any of the frequencies listed in § 74.402 as available to the location for these purposes.

(6) In Alaska, Guam, Hawaii, Puerto Rico, or the Virgin Islands, base stations may be licensed to provide program circuits between the studio and transmitter or to relay programs between broadcasting stations. Except in emergencies, such uses are not permitted within the 48 contiguous United States or the District of Columbia. Each station licensed for these purposes shall be licensed separately. Any of the frequencies listed in § 74.402 as available in the above places may be requested by an applicant. A base station operated pursuant to this subparagraph may be operated unattended: *Provided*, Such operation is conducted in accordance with the following:

(i) In the case where the station retransmits another station's signals received directly "off-the-air," the transmitter shall be equipped with automatic circuits that will cause it to cease radiating within 1 minute at times when no signal is being received from the station which it is relaying.

(ii) The transmitter shall be provided with adequate safeguards to prevent improper operation of the equipment.

(iii) The transmitter installation shall be adequately protected against tampering by unauthorized persons.

(iv) Whenever an unattended station is in operation, a person designated by and under control of the licensee shall be on duty at the receiving end of the circuit. The designated person need not be a licensed operator under Part 13 (Commercial Radio Operators) of the Commission's rules. The designated person on duty at the receiving end of the circuit shall observe circuit performance and initiate corrective action when required.

(v) It shall be the responsibility of the licensee to insure that any repairs or adjustments that may be necessary are made by a person technically qualified to do so.

(7) One or more fixed stations operating on Group P frequencies will be licensed as a system for control and telemetry signals between a remote control or automatic transmission monitoring and alarm points

and the broadcast site.

(d) Remote pickup system licensees will specify the minimum and maximum number of mobile units that may be operated within that system as follows:

- from 1 to 5 stations
- from 4 to 12 stations
- from 10 to 24 stations
- from 20 to 50 stations
- 45 or more stations (maximum to be specified on license application).

Licensees shall have installed and maintain in operating condition the minimum number of mobile units authorized within 120 days following the grant date of the license.

(e) The Commission will assign a separate call sign for each station or system separately licensed. The licensee of a remote pickup broadcast system shall assign an individual unit designator to each station in the system.

(f) An application for a new or renewal remote pickup station license shall specify the frequency or frequencies desired. Only those frequencies necessary for satisfactory operation shall be requested.

(g) An application for a remote pickup broadcast station or system shall specify the broadcasting station or stations (where more than one broadcasting station is specified, all such broadcasting stations shall be licensed to the applicant and to the same community) with which the remote pickup broadcast facility is to be principally used and the licensed area of operation for a system which includes mobile stations shall be the area considered to be served by the associated broadcasting station or stations. Mobile stations may be operated outside the licensed area of operation pursuant to § 74.431(d). Where the applicant for remote pickup broadcast facilities is the licensee of more than one class of broadcasting station (AM, FM, TV), all licensed to the same community, designation of one or more such stations as the associated broadcasting station or stations will not preclude use of the remote pickup broadcast facilities with those broadcasting stations not included in the designation and such additional use shall be at the discretion of the licensee.

(h) Each remote pickup broadcast station operated by a licensee shall be made available for inspection upon request by any authorized representative of the Commission. In cases where a series of broadcasts are to be made from the same location, portable or mobile transmitters may be left at such location for the duration of the series of broadcasts: *Provided*, The transmitting apparatus is properly secured so that it may not be operated by unauthorized persons when unattended. Prior Commission authority shall be obtained for the installation of any transmitting antenna which requires notification to the FFA, pursuant to § 71.7 of the Commission's rules and regulations, and which will be in existence for more than 2 days.

(i) The location of each remote pickup broadcast base station will be specified in the station or system license and such stations may not be operated at any other location without prior authority of the Commission.

(j) A remote pickup broadcast station or system may be authorized solely for operational communications provided such operation is confined to the frequencies listed in § 74.402(a) (7).

(k) In case of permanent discontinuance of operation of a station or system licensed under this Subpart, the licensee shall forward the station or system license to the issuing authority for cancellation. For purposes of this section, a station which is not operated for a period of one year, or is incapable of being operated within the time period specified in § 74.432 (d) is considered to have been permanently discontinued.

(l) Applications for renewal of authority to operate remote pickup broadcast stations filed after August 31, 1976, shall include information which identifies the stations to be included in each system designated by the licensee in accordance with the procedures set forth in this section.

*NOTE.*—Licensees of remote pickup broadcast stations licensed prior to August 31, 1976, should not file applications to consolidate individually licensed transmitters under a single system license until the renewal application of the associated broadcast station is filed. Applications filed between August 31, 1976, and the date of filing of the renewal applications to obtain authorization to use additional transmitters or modification of existing stations shall be restricted to a single system application necessary to accomplish the desired change, but may include consolidation of previously-licensed transmitters within the system license. Applications submitted for system licensing prior to the time when renewal applications would normally be filed which are unnecessary for either administrative or operational purposes will be returned as unacceptable for filing.

#### § 74.433 Temporary authorizations.

(a) Special temporary authority may be granted for: operation of a remote pickup broadcast station licensed to another broadcasting station licensee; operation, as a remote pickup broadcast station, of equipment licensed to another class of station or service, or, operation of equipment of suitable design not heretofore licensed. Such authority will normally be granted only for special operations of a temporary nature.

(b) A request for special temporary authority for the operation of a remote pickup broadcast station may be made by informal application, which shall be filed with the Commission at least 10 days prior to the date of the proposed operation: *Provided*, That, an application filed within less than 10 days of the proposed operation may be accepted upon a satisfactory showing of the reasons for the delay in submitting the request.

(c) An informal request for special temporary authority shall be addressed to the Commission in Washington, D.C., or the Commission's Chicago Regional Office, as appropriate (see § 74.404), and shall set forth full particulars including: licensee's name, call letters of associated broadcasting station or stations, name and address of individual designated to receive return telegram, call letters of remote pickup station if assigned, type and manufacturer of equipment, power output, emission, frequency or frequencies proposed to be used, commencement and

termination date and location of proposed operation, and purpose for which request is made including any particular justification. In the event that the proposed antenna installation will increase the height of any natural formation or existing man-made structure by more than 20 feet, a vertical plan sketch showing the height above ground of any existing structure, the elevation of the site above mean sea level, and the geographic coordinates of the proposed site, shall be submitted with the application.

(d) A request for special temporary authority shall specify a frequency or frequencies consistent with the provisions of § 74.402: *Provided*, That, in the case of events of widespread interest and importance which cannot be transmitted successfully on these frequencies, frequencies assigned to other services may be requested upon a showing that operation thereon will not cause interference to established stations: *And provided further*, In no case will operation of a remote pickup broadcast station be authorized on frequencies employed for the safety of life and property.

(e) An applicant requesting special temporary authority to operate, as a remote pickup broadcast station, equipment authorized for use by another class of station, shall, if the equipment to be used is not licensed to the applicant, submit a statement to show that temporary control of the transmissions therefrom has been secured for the duration of the special operation proposed.

(f) Special temporary authority to permit operation of remote pickup broadcast stations or systems pending Commission action on an application for regular authority will not normally be granted.

#### § 73.434 Remote control operation.

(a) Remote control operation is permitted for remote pickup broadcast base stations only and such operation shall be in accordance with the following conditions:

(1) The transmitter shall be equipped with a device which will automatically prevent modulation in excess of the limits set forth in this Subpart or the control position shall be equipped with a percentage modulation indicator or calibrated program level meter.

(2) The person at the control position designated to operate the transmitter shall have on-and-off control of the transmitter output.

(3) The transmitter shall be inaccessible to other than duly authorized persons.

#### § 74.435 [Reserved]

#### § 74.436 Special requirements for automatic relay stations.

An automatic relay station installation shall, in addition to the relay transmitter, include a monitor receiver, a control unit, and one or more relay receivers.

(a) *Monitor receiver*: A receiver tuned to the frequency assigned to the automatic relay station and connected to the transmitting antenna used by the automatic relay station shall be in operation at the

automatic relay station at all times when the relay transmitter is capable of being turned on automatically. The monitor receiver shall comply with the following requirements:

(1) The receiver shall be equipped with a "lock-out" control circuit which will prevent the relay transmitter from being turned on automatically whenever a signal other than the signal of the relay transmitter is being received.

(2) The sensitivity of the monitor receiver shall be such that a signal of 2 mV or more across the antenna input terminals will actuate the "lock-out" control which prevents the transmitter from being turned on automatically.

(3) The "lock-out" control shall be so designed that if the monitor receiver is inoperative the relay transmitter cannot be turned on automatically.

(b) *Control unit*: The control unit may be an integral part of the relay receiver or may be a separate unit into which the output of one or more relay receivers is fed. The control unit shall meet the following requirements:

(1) The control unit shall be so designed that it will turn the relay transmitter on only upon receipt of a predetermined coded signal consisting of at least two tones which may be transmitted either simultaneously or sequentially, or a series of at least three dissimilar pulse combinations transmitted sequentially. In lieu of the coded signal, the control unit may be designed so that the transmitter will remain operative only when receiving a continuous signal tone superimposed on the material being relayed.

(2) The control unit shall be capable of turning the transmitter off upon receipt of an appropriate signal. The complexity of the signal used to turn off the relay transmitter is left to the discretion of the licensee.

(3) The control unit shall also be designed so that the absence of a signal from the relay receiver either due to cessation of operation of the station being relayed or failure of the relay receiver or control unit, will automatically place the relay transmitter in an inoperative condition. A suitable time-delay factor may be incorporated to prevent actuation of the automatic cut-off due to momentary failures of the incoming signals.

(c) *Relay receiver*: One or more receivers tuned to frequencies used by the stations which are to be relayed by the automatic relay station, may be installed at the automatic relay station site. The receivers shall be installed so that they will turn the relay transmitter on and off only through the control unit. The choice of receivers and receiving antennas is left to the discretion of the licensee.

(d) The automatic relay station may accomplish the retransmission of the incoming signals by simple heterodyne frequency conversion or by modulating the transmitter with aural signals obtained by demodulation of the incoming signal. If the relay transmitter is to be modulated with aural signals the transmitter or the receiver or both shall be equipped

with automatic controls which will prevent overmodulation of the relay transmitter.

(e) The transmitting apparatus and control equipment shall be adequately protected against tampering by unauthorized persons.

(f) An application for authority to construct an automatic relay station shall include a satisfactory showing as to the manner of compliance with the requirements of this section.

#### EQUIPMENT

##### § 74.451 Type acceptance of equipment.

(a) Applications for new remote pickup broadcast stations or systems or for changing transmitting equipment of an existing station will not be accepted unless the transmitters to be used have been type accepted by the FCC pursuant to the provisions of this Subpart, or have been type accepted for licensing under Parts 21 or 90 of the FCC rules and do not exceed the output power limits specified § 74.461 (b).

(b) Any manufacturer of a transmitter to be used in this service may apply for type acceptance for such transmitter following the type acceptance procedure set forth in Part 2 of the Commission's rules and regulations. Attention is also directed to Part 1 of the Commission's rules and regulations which specifies the fees required when filing an application for type acceptance.

(c) An applicant for a remote pickup broadcast station or system may also apply for type acceptance for an individual transmitter by following the type acceptance procedure set forth in Part 2 of the Commission's Rules and Regulations. Individual transmitters which are type accepted will not normally be included in the Commission's "Radio Equipment List".

(d) All transmitters marketed for use under this Subpart shall be type accepted by the Federal Communications Commission. (Refer to Subpart J of Part 2 of the Commission's Rules and Regulations.)

(e) Remote pickup broadcast station transmitting equipment authorized to be used pursuant to an application accepted for filing prior to December 1, 1977, may continue to be used by the licensee or its successors or assignees: *Provided, however,* If operation of such equipment causes harmful interference due to its failure to comply with the technical standards set forth in this subpart the Commission may, at its discretion, require the licensee to take such corrective action as is necessary to eliminate the interference.

(f) Each instrument of authority which permits operation of a remote pickup broadcast station or system using equipment which has not been type accepted will specify the particular transmitting equipment which the licensee is authorized to use.

[§ 74.451 (a) revised eff. 4-30-80; III (80)-1]

##### § 74.452 Equipment changes.

(a) Prior Commission approval is required for any change in the overall height of an antenna structure, except where notice to the Federal Aviation Administration is specifically not required under § 17.14 (b) of the Commission's rules and regulations.

(b) The licensee of a remote pickup broadcast station may, except as set forth in paragraph (d) of this section, make any other changes in the equipment that are deemed desirable or necessary, including replacement with type accepted equipment, without prior Commission approval: *Provided,* The proposed changes will not depart from any of the terms of the station or system authorization or the Commission's technical rules governing this service: *And provided further,* That any changes made to type accepted transmitting equipment shall be in compliance with the provisions of Part 2 of the Commission's rules and regulations concerning modification to type accepted equipment.

(c) Any equipment changes made pursuant to paragraph (b) of this section shall be set forth in the next application for renewal of license.

(d) All transmitters initially installed after November 30, 1977, must be type accepted for use in this service or other services as specified in § 74.451 (a).

NOTE: [Deleted].

#### TECHNICAL OPERATION AND OPERATORS

##### § 74.461 Transmitter power.

(a) Transmitter power is the power at the transmitter output terminals and delivered to the antenna, antenna transmission line, or any other impedance-matched, radio frequency load. For the purpose of this Subpart, the transmitter power is the carrier power.

(b) The authorized transmitter power for a remote pickup broadcast station shall be limited to that necessary for satisfactory service and, in any event, shall not be greater than 100 watts, except that a station to be operated aboard an aircraft shall normally be limited to a maximum authorized power of 15 watts. Specific authorization to operate stations on board aircraft with an output power exceeding 15 watts will be issued only upon an adequate engineering showing of need, and of the procedures that will be taken to avoid harmful interference to other licensees.

##### § 74.462 Authorized bandwidth and emissions.

(a) Each authorization for a new remote pickup broadcast station or system issued pursuant to an application accepted after (one year following the effective date of these rules) shall require the use of type accepted equipment and such equipment shall be operated in accordance with emission specifications included in the type acceptance grant and as prescribed in paragraphs (b), (c), and (d) of this section.

(b) The maximum authorized bandwidth of emissions corresponding to the types of emissions specified below, and the maximum authorized frequency deviation in the case of frequency or phase modulated emission, shall be as follows:

Frequencies (megahertz)	Authorized bandwidth (Kilohertz)	Maximum frequency deviation <sup>1</sup> (Kilohertz)	Type of emission <sup>2,3</sup>
25.87 to 26.03.....	40	10	A3, F3, F9
26.07 to 26.47.....	20	5	A3, F3, F9
152.87 to 153.35 <sup>4</sup> .....	30-60	5-10	A3, F3, F9
160.89 to 161.37.....	60	10	A1, A2, A3, F1, F2, F3, F9
161.64 to 161.76.....	30	5	A1, A2, A3, F1, F2, F3, F9
166.25 to 170.15.....	25	5	A1, A2, A3, F1, F2, F3, F9
450.01 to 455.99 (10 kHz channels).	10	1.5	A1, A2, A3, F1, F2, F3, F9
450.0875 to 455.6125 (25 kHz channels).	25	5	A1, A2, A3, F1, F2, F3, F9
450.05 to 455.85 (50 kHz channels).	50	10	A1, A2, A3, F1, F2, F3, F9
450.925 and 455.925 (100 kHz channels).	100	35	A1, A2, A3, F1, F2, F3, F9

<sup>1</sup> Applies where class F1, F2, F3, or F9 emission is used.

<sup>2</sup> Stations operating above 450 MHz shall show a need for employing A1, A2, F1, or F2 emission.

<sup>3</sup> Emission designators shall be established in accordance with provisions of subpt. C of pt. 2 of the Commission's rules and regulations. For transmitting equipment which is type accepted, emission designators will appear in the Commission's radio equipment list.

<sup>4</sup> New or modified licenses for use of the frequencies will not be granted to utilize transmitters on board aircraft or to use a bandwidth in excess of 30 kHz and maximum deviation exceeding 5 kHz.

(c) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

(1) On any frequency removed from the assignment frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 decibels:

(2) On any frequency removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth at least 35 decibels:

(3) On any frequency removed from the assigned frequency by more than 250 percent on the authorized bandwidth; at least 43 plus  $10 \log_{10}$  (mean output power, in watts) decibels.

(d) In the event a station's emissions outside its authorized channel cause harmful interference, the Commission may, at its discretion, require the licensee to take such further steps as may be necessary to eliminate the interference.

(e) The maximum authorized bandwidth for stations operating on 1606, 1622, or 1646 kHz shall be 10 kHz and operations on these frequencies shall be limited to A3 emission only.

**§ 74.463 Modulation requirements.**

(a) Each new remote pickup broadcast station authorized pursuant to an application accepted for filing after August 31, 1977, and authorized to operate with a power output in excess of 3 watts shall be equipped with a device which will automatically prevent modulation in excess of the limits set forth in this Subpart.

(b) If amplitude modulation is employed, modulation shall not exceed 100 percent on negative peaks.

(c) If frequency modulation is employed, emission shall conform to the requirements specified in § 74.462.

**§ 74.464 Frequency tolerance.**

The licensee of a remote pickup broadcast station or system shall maintain the operating frequency of each such station in accordance with the following:

Frequency range	Tolerance (percent)	
	Base station	Mobile station
.6 to 2 MHz:		
200 W or less.....	0.01	.02
Over 200 W.....	.005	.02
25 to 30 MHz:		
3 W or less.....	.002	.005
Over 3 W.....	.002	.002
30 to 300 MHz:		
3 W or less.....	.0005	.005
Over 3 W.....	.0005	.0005
300 to 500 MHz, all powers.....	.00025	.0005

<sup>1</sup> The listing of tolerances for power over 200 W is in accordance with treaty values and shall not be construed as a finding that such power will be authorized.

**§ 74.465 Frequency monitors and measurements.**

(a) The licensee of a remote pickup broadcast station or system shall provide the necessary means to assure that all operating frequencies are maintained within the allowed tolerances. The date and time of each frequency check, the frequency as measured, a description or identification of the method employed and identification of the transmitter on which the measurement is made shall be entered in the operating log.

(b) Frequency measurements for each transmitter shall be made as often as necessary to assure proper operation. In any event, the frequency of a station authorized to operate with output power in excess of 3 watts shall be measured when the transmitter is initially installed and at intervals once each calendar year at intervals no more than 14 months apart.

**§ 74.466 Station inspections.**

The licensee of each remote pickup broadcast station or system shall make such station or system available for inspection by representatives of the Commission at any reasonable hour.

**§ 74.467 Posting of licenses.**

(a) The license for a remote pickup broadcast station or system and any other instrument of authorization or individual order concerning the construction of the equipment or manner of operation shall be posted with the license of any associated broadcasting station. Licenses issued to eligible network entities shall be retained in the licensee's files at the address shown on the authorization.

(b) At the operating position of each transmitter, other than mobile or handheld units, an identification label must be displayed showing the station call sign, the call letters of the associated broadcast station(s) or network name, the name and address of the licensee, frequencies, and the licensee's unit designator if used.

(c) If the station is authorized to operate as an automatic relay station, and is operated at an unattended site, the call sign and location of the associated broadcasting station or stations or network, together with the legend "Automatic Relay Station," shall be displayed at the relay transmitter site. The required display shall be affixed to the transmitter housing or antenna structure so as to be visible to a person standing on the ground at the transmitter site, or if the transmitting facilities are installed on the roof of a building the required display must be visible to a person standing on the roof. The display shall be prepared so as to withstand normal weathering for a reasonable period of time and shall be maintained in a legible condition by the licensee.

#### § 74.468 Operator requirements.

(a) Except under the circumstances specified in paragraph (d) of this section, a remote pickup broadcast station may be operated by any person designated by and under control of the station licensee. That person need not be a licensed operator under Part 13 (Commercial Radio Operators) of the Commission's rules and regulations.

(b) Automatic relay stations authorized pursuant to the provisions of § 74.432(c)(1) may be operated unattended.

(c) The provisions of this section authorizing unlicensed persons to operate remote pickup broadcast stations, or authorizing unattended operation of such stations in certain circumstances, shall not be construed to change or diminish in any respect the responsibility of a station licensee to have and to maintain control over the stations licensed to it or for the proper functioning and operation of those stations in accordance with the terms of the station or system license and pertinent Commission rules and regulations.

(d) All transmitter repairs or adjustments which may affect the proper operation of a remote pickup broadcast station shall be made by or under the immediate supervision of a person holding a first or second-class commercial radiotelephone operator's license.

(e) The person operating a remote pickup broadcast station may, at the discretion of the licensee, be employed for other duties, including operation of another station or stations in accordance with the rules and regulations governing operation of such other stations: *Provided*, The additional duties shall in no way interfere with the duties connected with the operation of the remote pickup broadcast station.

#### § 74.469 Painting and lighting of antenna structures.

The painting and lighting of antenna structures employed by the stations licensed under this Subpart, where required, will be specified in the authorization issued by the Commission Part 17 of the Commission's rules and regulations set forth the conditions under which painting and lighting will be required and the responsibility of the licensee with regard thereto.

#### § 74.470 Additional rules.

In case the rules contained in this part do not cover all phases of operation or experimentation with respect to external effects, the Commission may make supplemental or additional orders in each case as may be deemed necessary.

#### OTHER OPERATING REQUIREMENTS

#### § 74.481 Logs and records.

(a) The licensee of a remote pickup broadcast station system shall, for each station or system separately licensed, maintain an operating log in which entries shall be made in accordance with the following:

(1) If the instrument of authorization requires painting and lighting of an antenna structure:

(i) Entries required by § 17.49 (a), (b), and (c) of this chapter concerning the time the tower lights are turned on and off each day if manually controlled, the time the daily check of proper operation of the tower lights was made if automatic alarm system is not provided, and any observed failure of the lighting system. See § 17.47(a) for daily tower lighting observation or automatic alarm system requirements.

(ii) Entries required by § 17.49(d) of this chapter concerning quarterly inspections of the condition of the tower lights and associated control equipment; when adjustments, replacement or repairs are made to insure compliance with the lighting requirements; and when towers are cleaned or repainted by § 17.50 of this chapter.

(2) An entry of frequency measurements made pursuant to § 74.465.

(3) An entry when service or maintenance is performed on any transmitter, if such service or maintenance could affect proper operation. The entry shall include a description of the work performed, the date and the signature and license serial number of the operator performing the service or maintenance duties or under whose supervision such duties have been performed.

(4) Entries as specifically requested by the Commission.

(b) Entries in the operating log shall be made by a person having knowledge of the facts entered. That person shall sign and date the log but the licensee shall not, thereby, be relieved of its responsibility to maintain complete and accurate logs and records.

(c) No provision of this section shall be construed as prohibiting the recording or other automatic maintenance of data required for the station or system log. However, where such automatic logging is used, the licensee shall comply with the following requirements:

(1) The licensee, when employing automatic logging must be able to accurately furnish the Commission with all information required to be logged.

(2) Each recording shall bear a statement, signed and dated by the licensee or a duly authorized agent of the licensee, attesting to the accuracy and complete-

ness of the recorded information. Any information required to be logged which cannot be incorporated in the automatic process shall be similarly authenticated.

(3) The licensee shall extract any required information from the recording as requested by the Commission or its duly authorized representative and submit it in written form.

(d) The licensee of a remote pickup broadcast system shall maintain a record of unit designators and the stations to which each designator has been assigned.

(e) [Reserved]

(f) Licensees in Alaska, Guam, Hawaii, Puerto Rico, or the Virgin Islands, operating remote pickup broadcast base stations unattended pursuant to § 74.432(c)(6), shall maintain an operating log for each circuit in which such stations are operated. The operating log shall identify the station(s) being operated unattended, indicate the time and date of the beginning and end of each period of operation, identify the designed person on duty at the receiving end of the circuits and include notations, as appropriate, pertaining to operation of the station or stations included in the circuit.

(g) Remote pickup broadcast station or system logs and records may be kept at any location convenient to the licensee: *Provided*, Such log and records shall be readily available for inspection by a duly authorized representative of the Commission upon request. Logs and records shall be retained for a period of two years.

#### § 74.482 Station identification.

(a) Except for stations licensed pursuant to § 74.435, the Commission will assign a call sign for each remote pickup broadcast station or system and, for systems, the licensee shall assign a unit designator to each station in the system. The station or system call sign, and unit

designator where appropriate, shall be transmitted by the station at the beginning and end of each period of operation. A period of operation may consist of a single continuous transmission or a series of intermittent transmissions pertaining to a single event.

(b) In cases where a period of operation is of more than one hour duration, identification of remote pickup broadcast stations participating in the operation shall be made at approximately one-hour intervals. Identification transmissions during operation need not be made when to make such transmission would interrupt a single consecutive speech, play, religious service, symphony, concert, or any type of production. In such cases, the identification transmissions shall be made at the first interruption in the program continuity and at the conclusion thereof. Hourly identification may be accomplished either by transmission of the station or system call sign and unit designator assigned to the individual station or identification of an associated broadcasting station or network with which the remote pickup broadcast station is being used.

(c) In cases where an automatic relay station is a part of the circuit, the call sign of the relay transmitter may be transmitted automatically by the relay transmitter or by the remote pickup broadcast base or mobile station that actuates the automatic relay station.

(d) Automatically activated equipment may be used to transmit station identification in international Morse code, provided that the modulation tone is 750 Hz  $\pm 10$  Hz, the level of modulation of the identification signal is maintained at 40%  $\pm 10$ %, and that the code transmission rate is maintained between 20 and 25 words per minute.

[§ 74.482(d) revised eff. 4-30-80; III(80)-1]

**SUBPART E—AURAL BROADCAST STL AND INTERCITY RELAY STATIONS**

**DEFINITIONS AND ALLOCATION OF FREQUENCIES**

**§ 74.501 Classes of stations.**

(a) *Aural broadcast STL station.* A fixed station utilizing telephony for the transmission of aural program material between a studio and the transmitter of a broadcasting station other than an international broadcasting station, for simultaneous or delayed broadcast.

(b) *Aural broadcast intercity relay station.* A fixed station utilizing telephony for the transmission of aural program material between broadcasting stations other than international broadcasting stations, for simultaneous or delayed broadcast.

**§ 74.502 Frequency assignment.**

(a) The frequency band 947–952 MHz is divided into ten 500 kHz channels for assignment to aural broadcast STL and intercity relay stations. Each of the following frequencies is the center frequency of a channel.

(MHz)	(MHz)	(MHz)	(MHz)
947.0	948.5	950.0	951.5
947.5	949.0	950.5	
948.0	949.5	951.0	

A single broadcast station licensee will normally be limited to the assignment of one 500 kHz channel between the same point of origin and destination. If the circuit carries only one aural program channel, the center frequency of the channel will be assigned. If a single licensee requires more than one aural program channel between the same point of origin and destination, more than one transmitter may be authorized to operate within a single 500 kHz channel, employing carrier frequencies above and below the center frequency listed in this paragraph. Where such assignments are made the operating frequencies selected shall be such that the unmodulated carrier frequency plus or minus the sum of M+D does not extend beyond the upper or lower channel edge. M is the maximum modulating frequency and D is the maximum excursion of the carrier from the unmodulated carrier frequency due to modulation. Under these circumstances, the operating frequencies of the unmodulated carriers shall be maintained with .001% of the assigned frequencies.

(b) The use of the frequencies listed in paragraph (a) of this section by aural broadcast intercity relay stations is subject to the condition that no harmful interference is caused to other classes of stations operating in accordance with the Table of Frequency Allocations contained in § 2.106 of this Chapter.

(c) Any aural broadcast STL or intercity relay station for which there was outstanding a valid construction permit or license on April 16, 1958, specifying operation on any frequency between 890 MHz and 942

MHz, may continue to be operated on such frequencies for the remainder of the term specified in such authorization and may, upon appropriate application therefor, be granted a renewal of such license, subject to the condition that no harmful interference shall be caused to the radiolocation service operating in the band 890–942 MHz and subject to the further condition that the licensee must accept any interference which may be caused by the operation of radiolocation stations in the band 890–942 MHz and industrial, scientific, and medical (ISM) equipment in the band 890–940 MHz.

**§ 74.503 Frequency selection.**

(a) Each application for a new station or change in an existing station shall be specific with regard to frequency. In general, the lowest suitable frequency will be assigned which, on an engineering basis, will not cause harmful interference to other stations operating in accordance with existing frequency allocations.

(b) Where it appears that interference may result from the operation of a new station or a change in the facilities of an existing station, the Commission may require a showing that harmful interference will not be caused to existing stations or that if interference will be caused the need for the proposed service outweighs the loss of service due to the interference.

**LICENSING POLICIES AND GENERAL OPERATING REQUIREMENTS**

**§ 74.531 Permissible service.**

(a) An aural broadcast STL station is authorized to transmit aural program material between the studio and transmitter location of a broadcasting station, except international broadcasting station, for simultaneous or delayed broadcast.

(b) An aural broadcast intercity relay station is authorized to transmit aural program material between broadcasting stations, except international broadcasting stations, for simultaneous or delayed broadcast.

(c) Multiplexing of the STL or intercity relay transmitter may be employed to provide additional communication channels for the transmission of aural program material, news-wire teleprinter signals relaying news to be associated with main channel programming, operational communications, and material authorized to be transmitted over an FM station under a valid Subsidiary Communications Authorization (SCA). An aural broadcast STL or intercity relay station may not be operated solely for the transmission of operational, teleprinter or subsidiary communications. Operational communications include cues, orders, and other communications directly related to the operation of the broadcast station as well as special signals used for telemetry or the control of apparatus used in conjunction with the broadcasting operations.

(d) All program material, including subsidiary communications, transmitted over an aural broadcast STL

or intercity relay station shall be intended for use by broadcast stations owned or under common control of the licensee or licensees of the STL or intercity relay station. Other broadcast stations may simultaneously utilize such program material with permission of the STL or intercity relay station licensee.

(e) In any case where multiplexing is employed on an aural broadcast STL station for the simultaneous transmission of more than one aural channel, the STL transmitter must be capable of transmitting the multiple channels within the channel on which the STL station is authorized to operate and with adequate technical quality so that each broadcast station utilizing the circuit can meet the technical performance standards stipulated in the rules governing that class of broadcasting station. If multiplex operation is employed during the regular operation of the STL station, the additional circuits shall be in operation at the time that the required periodic performance measurements are made of the overall broadcasting system from the studio microphone input circuit to the broadcast transmitter output circuit.

【§ 74.531(c) revised eff. 8-8-80; III(80)-1】

#### § 74.532 Licensing requirements.

(a) An aural broadcast STL or intercity relay station will be licensed only to the licensee or licensees of broadcasting stations other than international broadcasting stations, and for use with broadcast stations owned entirely by or under common control of the licensee or licensees.

(b) More than one aural broadcast STL or intercity relay station may be licensed to a single licensee upon a satisfactory showing that the additional stations are needed to provide different program circuits to more than one broadcast station, to provide program circuits from other studios, or to provide one or more intermediate relay stations over a path which cannot be covered with a single station due to terrain or distance.

(c) If more than one broadcast station or class of broadcast station is proposed to be served by a single STL or intercity relay station, this information shall be clearly set forth in the application for construction permit or license.

(d) Each aural broadcast STL or intercity relay station will be licensed at a specified transmitter location to communicate with a specified receiving location, and the direction of the main radiation lobe of the transmitting antenna will be one of the terms of the license.

#### § 74.533 Remote control and unattended operation.

(a) Aural broadcast STL and intercity relay stations may be operated by remote control: *Provided*, That such operation is conducted in accordance with the conditions listed in this section: *And provided further*, That the Commission is notified at least 10 days prior to such operation and that such notification

is accompanied by a detailed description of the proposed remote control installation showing the manner of compliance with the following conditions:

(1) The operating position shall be under the control and supervision of the licensee;

(2) A carrier operated device shall be provided at the operating position which shall give a continuous visual indication when the transmitter is radiating; or, in lieu thereof, a device shall be provided which will give a continuous visual indication when any transmitter control circuits have been placed in a condition to produce radiation;

(3) Facilities shall be provided at the operating position which will permit the operator to turn the transmitter carrier on and off at will; and

(4) The transmitter and all of its operating controls shall be so installed and protected that they are not accessible to other than authorized personnel.

(b) Aural broadcast STL and intercity relay stations may be operated unattended: *Provided*, That such operation is conducted in accordance with the conditions listed below: *And provided further*, That the Commission in Washington, D.C., is notified at least 10 days prior to the beginning of such operation and that such notification is accompanied by a detailed description showing the manner of compliance with the following conditions:

(1) [Reserved.]

(2) The transmitter shall be provided with adequate safeguards to prevent improper operation of the equipment.

(3) The transmitter installation shall be adequately protected against tampering by unauthorized persons.

(4) Whenever an unattended aural broadcast STL or intercity relay station is in operation, appropriate observations must be made at the receiving end of the circuit at intervals not exceeding 24 hours by persons designated by the licensee who will institute measures sufficient to insure prompt correction of any condition of improper operation that is observed. If the aural broadcast STL station is associated with a station operated by remote control, the observations may be made by monitoring the broadcast station's transmitted signal at the remote control or ATS monitoring point.

(c) The Commission may notify the licensee not to commence remote control or unattended operation, or to cancel, suspend, or change the date of the beginning of such operation as and when such action may appear to be in the public interest, convenience, and necessity.

(Sec. 318, 48 Stat. 1089, as amended by Public Law 86-609, 74 Stat. 363; 47 U.S.C. 318)

【§ 74.533(b) (1) Removed and marked "Reserved"; (b) (4) Revised; (b) (5) Removed; eff. 4-30-80; III(80)-1】

#### § 74.534 Power limitations.

Aural broadcast STL and intercity relay stations will be licensed with a power output not in excess of that necessary to render satisfactory service. The license

for these stations will specify the maximum authorized power. The operating power shall not be greater than necessary to carry on the service and in no event more than 5% above the maximum power specified. Engineering standards have not been established for these stations. The efficiency factor for the last radio stage of transmitters employed will be subject to individual determination but shall be in general agreement with values normally employed for similar equipment operated within the frequency range authorized.

#### § 74.535 Emission and bandwidth.

(a) Aural broadcast STL and intercity relay stations normally will be authorized to employ frequency modulation only. The maximum frequency excursion of the carrier resulting from modulation shall not exceed 200 kHz above or below the assigned frequency.

(b) If multiplexing by means of one or more sub-carriers is employed, the maximum sub-carrier frequency used shall be such that  $2M+2D$  does not exceed 500 kHz, where  $M$  is the maximum modulating frequency in hertz and  $2D$  equals the total carrier frequency excursion as the result of modulation, expressed in hertz.

(c) The channels assigned to aural broadcast STL and intercity relay stations are 500 kHz in width, the assigned frequency being at the center of the channel. Emissions appearing outside the assigned channel shall be attenuated as follows:

(1) Any emission appearing on a frequency removed from the assigned frequency by between 250 and 500 kHz shall be attenuated at least 25 dB below the level of the unmodulated carrier. Compliance with this specification will be deemed to show the occupied bandwidth to be 500 kHz or less.

(2) Any emission appearing on a frequency removed from the assigned frequency by more than 500 kHz and up to and including 750 kHz shall be attenuated at least 35 decibels below the level of the unmodulated carrier.

(3) Any emission appearing on a frequency removed from the assigned frequency by more than 750 kHz shall be attenuated at least  $43+10 \log_{10}$  (power, in watts) dB below the level of the unmodulated carrier.

#### § 74.536 Directional antenna required.

Each aural broadcast STL and intercity relay station is required to employ a directional antenna. Considering one kilowatt of radiated power as a standard for comparative purposes, such antenna shall provide a free space field strength at one mile of not less than 435 mV/m in the main lobe of radiation toward the receiver and not more than 20% of the maximum value in any azimuth 30 degrees or more off the line to the receiver. Where more than one antenna is authorized for use with a single station, the radiation pattern of each shall be in accordance with the foregoing requirement.

## EQUIPMENT

### § 74.551 Equipment changes.

(a) Prior Commission approval, upon appropriate application (FCC Form 313) therefor, is required for any of the following changes:

(1) A change in the transmitter as a whole (except replacement with an identical transmitter), or a change in power output.

(2) A change of frequency assignment.

(3) A change in the location of the STL transmitter (except relocation of the equipment within the same building).

(4) Any change in the overall height of the antenna structure, except where notice to the Federal Aviation Administration is specifically not required under § 17.14(b) of this chapter.

(5) Any change in the direction of the main radiation lobe of the transmitting antenna.

(b) Other equipment changes not specifically referred to in this section may be made at the discretion of the licensee, provided that the Engineer in Charge of the radio district in which the station is located and the Commission in Washington, D.C., are promptly notified in writing upon the completion of such changes, and provided that the changes are set forth in the next application for renewal of license. Where such changes include the installation of multiplex equipment to provide additional aural channels, the purpose for which these added channels will be used shall be stated.

## TECHNICAL OPERATION AND OPERATORS

### § 74.561 Frequency tolerance.

The licensee of each aural broadcast STL and intercity relay station shall maintain the frequency of the station within plus or minus 0.005% of the assigned frequency.

### § 74.562 Frequency monitors and measurements.

The licensee of each aural broadcast STL and intercity relay station shall provide the necessary means for determining that the frequency of the station is within the allowed tolerance. The date and time of each frequency check, the frequency as measured, and a description or identification of the method employed shall be entered in the station log. Sufficient observations shall be made to insure that the assigned carrier frequency is maintained within the prescribed tolerance.

### § 74.563 Station inspection.

The licensee of each aural broadcast STL and intercity relay station shall make the station available for inspection by representatives of the Commission at any reasonable hour.

### § 74.564 Posting of station licenses.

The station license and any other instrument of authorization or individual order concerning the construction of the equipment or manner of operation of the station shall be posted so that all terms thereof

are visible, in a conspicuous place in the room in which the transmitter is located: *Provided*, That, if the transmitter operator is located at a distance from the transmitter pursuant to § 74.533, the station license shall be posted in the above-described manner at the operating position.

#### § 74.565 Operator requirements.

An aural broadcast STL and intercity relay may be operated only by a person designated by and under the control of the licensee and need not be a licensed operator under Part 13 (Commercial Radio Operators) of the Commission's rules and regulations. Any adjustments or repairs shall be made by or under the immediate supervision of an operator holding a first or second license responsible for the maintenance and proper functioning of such aural broadcast STL or intercity relay as required by § 13.61(h) of the Commission's rules and regulations of this chapter.

#### § 74.566 Antenna structure, marking and lighting.

The painting and lighting of antenna structures employed by stations licensed under this subpart, where required, will be specified in the authorization issued by the Commission. Section 74.22 and Part 17 of this chapter set forth the conditions under which painting and lighting will be required and the responsibility of the licensee with regard thereto.

#### § 74.567 Additional orders.

In case the rules contained in this part do not cover all phases of operation or experimentation with respect to external effects, the Commission may make supplemental or additional orders in each case as may be deemed necessary.

### OTHER OPERATING REQUIREMENTS

#### § 74.581 Logs and records.

(a) The licensee of aural broadcast STL and intercity relay stations, for each station or system separately licensed, must maintain an operating log in which entries shall be made in accordance with the following:

(1) If the instrument of authorization requires painting and lighting of an antenna structure:

(i) Entries required by § 17.49 (a), (b), and (c) of the FCC rules concerning the time the tower lights are turned on and off each day if manually controlled, the time the daily check of proper operation of the tower lights was made if automatic alarm system is not provided, and any observed failure of the lighting system. See § 17.47(a) for daily tower lighting observation or automatic alarm system requirements.

(ii) Entries required by § 17.49(d) of the FCC rules concerning quarterly inspections of the condition of the tower lights and associated control equipment; when adjustments, replacement or repairs are made to insure compliance with the lighting requirements; and when towers are cleaned or repainted as required by § 17.50.

(2) An entry of frequency measurements made pursuant to § 74.562.

(3) An entry when service or maintenance is performed on any transmitter, if such service or maintenance could affect proper operation. The entry shall include a description of the work performed, the date and the signature and license serial number of the operator performing the service or maintenance duties or under whose supervision such duties have been performed.

(4) Entries as specifically requested by the FCC.

(b) Entries in the operating log shall be made by a person having knowledge of the facts entered. That person shall sign and date the log but the licensee is not relieved of its responsibility to maintain complete and accurate logs and records.

(c) Remote pickup broadcast station or system logs and records may be kept at any location convenient to the licensee. The log and records must be readily available for inspection by a duly authorized representative of the FCC upon request. Logs and records must be retained for a period of two years.

【§ 74.581 amended eff. 4-30-80; III(80)-I】

#### § 74.582 Station identification.

(a) Each aural broadcast STL or intercity relay station, when transmitting program material or information shall transmit station identification at the beginning and end of each period of operation, and hourly, as close to the hour as feasible, at a natural break in program offerings by one of the following means:

(1) Transmission of its own call sign by aural means or by automatic transmission of international Morse telegraphy.

(2) Aural transmission of the call sign of the radio broadcast station with which it is licensed as an STL or intercity relay station.

(3) Aural transmission of the call sign of the radio broadcast station whose signals are being relayed, or, when programs are obtained directly from network lines and relayed, the network identification.

(b) Station identification transmissions during operation need not be made when to make such transmission would interrupt a single consecutive speech, play, religious service, symphony concert, or other such productions. In such cases, the identification transmission shall be made at the first interruption of the entertainment continuity and at the conclusion thereof.

(c) Where more than one aural broadcast STL or intercity relay station is employed in an integrated relay system, the station at the point of origination may originate the transmission of the call signs of all of the stations in the relay system.

(d) Voice transmissions shall normally be employed for station identification. However, other methods of station identification may be permitted or required by the Commission.

【§ 74.582 (a) revised eff. 4-30-80; III(80)-I】

**SUBPART F—TELEVISION AUXILIARY BROADCAST STATIONS**

**DEFINITIONS AND ALLOCATION OF FREQUENCIES**

**§ 74.601 Classes of television auxiliary broadcast stations.**

(a) *Television pickup station.* A land mobile station used for the transmission of television program material and related communications from the scenes of events occurring at points removed from television broadcast station studios to television broadcast stations.

(b) *Television STL station (studio-transmitter link).* A fixed station used for the transmission of television program material and related communications from the studio to the transmitter of a television broadcast station.

(c) *Television intercity relay station.* A fixed station used for intercity transmission of television program material and related communications for use by television broadcast stations.

(d) *Television translator relay station.* A fixed station used for relaying programs and signals of television broadcast stations to television broadcast translator stations and to other communications facilities that the Commission may authorize.

NOTE: Wherever used in this subpart, the term "television broadcast station licensee" includes a television broadcast station permittee.

**§ 74.602 Frequency assignment.**

(a) The following frequencies are available for assignment to television pickup, television STL, television intercity relay stations and television translator relay stations:

Band A MHz	Band B MHz	Band D <sup>1</sup> GHz			
		Group A Channels		Group B Channels	
		Designation	Channel Boundaries	Designation	Channel Boundaries
1990-2008	6875-6900	A01	12.700-12.725	B01	12.7125-12.7375
2008-2025	6900-6925	A02	12.725-12.750	B02	12.7375-12.7625
2025-2042	6925-6950	A03	12.750-12.775	B03	12.7266-12.7875
2042-2059	6950-6975	A04	12.775-12.800	B04	12.7875-12.8125
2059-2076	6975-7000	A05	12.800-12.825	B05	12.8125-12.8375
2076-2093	7000-7025	A06	12.825-12.850	B06	12.8375-12.8625
2093-2450	7025-7050	A07	12.850-12.875	B07	12.8625-12.8875
2450-2467	7050-7075	A08	12.875-12.900	B08	12.8875-12.9125
2467-2484	7075-7100	A09	12.900-12.925	B09	12.9125-12.9375
2484-2500	7100-7125	A10	12.925-12.950	B10	12.9375-12.9625
		A11	12.950-12.975	B11	12.9625-12.9875
		A12	12.975-13.000	B12	12.9875-13.0125
		A13	13.000-13.025	B13	13.0125-13.0375
		A14	13.025-13.050	B14	13.0375-13.0625
		A15	13.050-13.075	B15	13.0625-13.0875
		A16	13.075-13.100	B16	13.0875-13.1125
		A17	13.100-13.125	B17	13.1125-13.1375
		A18	13.125-13.150	B18	13.1375-13.1625
		A19	13.150-13.175	B19	13.1625-13.1875
		A20	13.175-13.200	B20	13.1875-13.2125
		A21	13.200-13.225	B21	13.2125-13.2375
		A22	13.225-13.250		

<sup>1</sup> For fixed stations using Band D Channels, applicants are encouraged to use alternate A and B channels such that adjacent R.F. carriers are spaced 12.5 MHz. As example, a fixed station, relaying several channels, would use A01, B01, A02, B02, A03, etc.

<sup>2</sup> The band 13.15-13.20 GHz is reserved exclusively for the assignment of Television Pickup and CARS Pickup stations on a co-equal basis within a 50 km radius of each of the 100 television markets delineated in Section 76.51. Fixed television auxiliary stations licensed pursuant to applications accepted for filing before Sept. 1, 1979, may continue operation on channels in the 13.15-13.20 GHz band, subject to periodic license renewals.

(1) Frequencies shown above between 2450 and 2500 MHz in Band A are allocated to accommodate the incidental radiations of industrial, scientific, and medical (ISM) equipment, and stations operating therein must accept any interference that may be caused by the operation of such equipment. Frequencies between 2450 and 2500 MHz are also shared with other communication services and exclusive channel assignments will not be made, nor is the channeling shown above necessarily that which will be employed by such other services.

(2) The following notes to the Table of Frequency Allocations contained in Section 2.106 apply to the shared use of the frequency bands shown above:

US90 In the band 2025-2120 MHz earth-to-space transmissions in the space research and earth exploration satellite services by Government and non-Government station at specific locations may be authorized subject to such conditions as may be applied on a case-by-case basis.

US111 In the band 1990-2120 MHz, Government space research earth station may be authorized to use the frequencies 2062.05, 2062.85, 2063.85, 2069.2, 2070, 2071, 2075.8, 2076.6, 2077.6, 2101.8, 2106.4 MHz and the band 2110-2120 MHz for earth-to-space transmissions for tracking, ranging and telecommand purposes at only the sites listed below. Such transmissions shall not cause harmful interference to non-Government operations.

- Corpus Christi, Tex., 27°39' N, 097°23' W
- Fairbanks, Alaska, 64°59' N, 147°53' W
- Goldstone, Calif., 35°18' N, 116°54' W
- Greenbelt, Md., 39°00' N, 076°50' W
- Guam, Mariana Islands, 13°19' N, 144°44' E
- Kanai, Hawaii, 22°08' N, 159°40' W
- Merritt Island, Fla., 28°29' N, 080°35' W
- Rosman, N.C., 35°12' N, 082°52' W
- Wallops Island, Va., 37°57' N, 075°28' W

US219 In the band 2025-2120 MHz Government earth resources satellite earth stations in the Earth Explorations Satellite Service may be authorized to use the frequency 2106.4 MHz for earth-to-space transmission for tracking, telemetry, and telecommand at the sites listed below. Such transmissions shall not cause harmful interference to TV auxiliary stations.

US222 In the band 2025-2120 MHz. Geostationary Operational Environmental Satellite Earth stations in the Space Research and Earth Exploration Satellite Services may be authorized on a co-equal basis to use the frequency band 2025-2035 MHz for earth-to-space transmissions for tracking, telemetry and telecommand at the sites listed below:

- Wallops Island, Va., 37°50'48" N, 75°27'33" W
- Seattle, Washington, 47°34'15" N, 122°33'10" W
- Honolulu, Hawaii, 21°21'12" N, 157°52'36" W

(b) Except as provided in paragraph (a) of this section, each television broadcast station licensee in

an area may request the assignment of one channel in Band A or Band B and one channel in Band D on an exclusive basis. In making such exclusive assignments, priority will be based on the filing date of an appropriate application (FCC Form 313) completed in accordance with the instructions thereon. Frequency assignments will normally be made as requested if the requested frequency is not assigned to another licensee on an exclusive basis. However, the Commission reserves the right to assign frequencies other than those requested if, in its opinion, such action is warranted.

(c) Where the relative locations of the studio and transmitter are such as to permit co-channel operation of television STL stations by two or more licensees in the same area, such licensees may, by mutual agreement, request the assignment of a common channel for STL use on an exclusive basis. In the event that such a shared assignment is made, each participating licensee may request the assignment of an individual exclusive channel in Band A, Band B, or Band D in addition to the shared STL channel.

(d) A television broadcast station licensee will normally be limited to the assignment of not more than three channels in Bands A and B combined, only one of which will be assigned on an exclusive basis: *Provided, however,* That additional channels in Bands A and B may be assigned on a non-exclusive basis upon a satisfactory showing that additional channels are necessary and that such additional channels, if assigned, will not be needed to provide an exclusive channel to some other licensee in the same area within the foreseeable future. The number of channels in Band D that may be assigned to a licensee in a single area is not restricted.

(e) Non-exclusive channel assignments are subject to withdrawal without advance notice to provide an exclusive channel assignment to a licensee pursuant to the provisions of paragraph (b) of this section. The Commission reserves the right to select the non-exclusive channel assignment to be withdrawn; however, withdrawals will normally be made in the following order:

(1) The most recent channel assignment to the licensee having the greatest number of assignments in Band, A, B, or D. Determination as to whether the withdrawal shall be made in Band A, Band B, or Band D will be based on the design of the equipment proposed to be used by the applicant for whom the exclusive channel is required.

(2) Where two or more licensees are assigned individually an equal number of non-exclusive channels in the same band and a greater number of channels in that band than any one of the other licensees, the assignment of most recent date.

(3) In all other cases the assignment of most recent date of a non-exclusive channel.

(f) Community antenna relay stations may be assigned channels in Band D between 12,700 and 12,950 MHz subject to the condition that no harmful interference is caused to television STL and intercity relay stations authorized at the time of such grants. Similarly, new television STL and intercity relay stations shall not cause harmful interference to community antenna relay stations authorized at the time of such grants. The use of channels between 12,700 and 12,950 MHz by television pickup stations is subject to the condition that no harmful interference is caused to community antenna relay, television STL and television intercity relay stations.

(g) In the event that a television broadcast station licensee engages a communications common carrier to provide television pickup or television STL service, the frequencies available to that licensee may be assigned to the communications common carrier for the purpose of providing such service to that licensee. For the purpose of applying the provisions with respect to exclusive channel assignments and the withdrawal of channels, channels assigned to communications common carriers to provide television pickup or television STL service to an individual television broadcast station licensee will be considered to be assigned to that television broadcast licensee.

(h) Translator relay stations will be assigned on a secondary basis, i.e., subject to the condition that no harmful interference is caused to other television auxiliary stations or to CARS stations operating between 12700 and 13200 MHz, and that translator relay stations must accept any interference caused by such stations.

(i) [Reserved]

#### § 74.603 Sound channels.

(a) The frequencies listed in § 74.602(a) may be used for the simultaneous transmission of the picture and sound portions of television broadcast programs and for cue and order circuits, either by means of multiplexing or by the use of a separate transmitter within the same channel. When multiplexing of a television STL station is contemplated, consideration should be given to the requirements of § 73.687 of this chapter regarding the overall system performance requirements. Applications for new television pickup, television STL, television intercity relay and television translator relay stations shall clearly indicate the nature of any multiplexing proposed. Multiplexing equipment may be installed on licensed equipment without further authority of the Commission: *Provided,* That the Commission in Washington, D.C., and the Commission's Engineer in Charge of the radio district in which this station is located shall be promptly notified of the installation of such apparatus: *And provided further,* That the installation of such apparatus on a television STL station shall not result in degradation of the overall system performance of the television broad-

cast station below that permitted by § 73.687 of this chapter.

(b) The aural portion of television broadcast program material may be transmitted over an aural broadcast STL or intercity relay station licensed under the provisions of Subpart E of this part.

(c) Any television STL station or television intercity relay station used for the transmission of the sound portion only of television program material and for which there was outstanding a valid construction permit or license on April 16, 1958, specifying operation on any frequency between 890 MHz and 940 MHz may continue to be operated on such frequencies for the remainder of the term specified in such authorization and may, upon appropriate application therefor, be granted a renewal of license subject to the condition that no harmful interference shall be caused to the radiopositioning service operating in the band 890-942 MHz and subject to the further condition that the licensee must accept any interference which may be caused by the operation of radiopositioning stations in the band 890-942 MHz and industrial, scientific, and medical (ISM) equipment operating in the band 890-940 MHz.

(d) Remote pickup broadcast stations may be used in conjunction with television pickup stations for the transmission of the aural portion of television programs or events that occur outside a television studio and for the transmission of cues, orders, and other related communications necessary thereto. The rules governing remote pickup broadcast stations are contained in Subpart D of this part.

#### § 74.604 Frequency selection to avoid interference.

(a) Applicants for new television pickup, television STL, television intercity relay and television translator relay stations shall endeavor to select frequency assignments which will be least likely to result in mutual interference with other licensees in the same area since the FCC itself does not undertake frequency coordination. Consideration should be given to the relative locations of receiving points, normal transmission paths, and the nature of the contemplated operation.

(b) Because of the more or less continuous nature of the operation of television STL stations, frequency assignments to such stations will normally be designated as the exclusive channel of the licensee pursuant to § 74.602(b).

(c) Where two or more licensees are assigned a common channel for television pickup, television STL, or television intercity relay purposes in the same area and simultaneous operation is contemplated, they shall take such steps as may be necessary to avoid mutual interference. If a mutual agreement to this effect cannot be reached, the Commission shall be notified and it will take such action as may be necessary, including time-sharing arrangements, to assure an equitable distribution of available facilities.

[§ 74.604(a) revised eff. 12-12-80; III(80)-1]

#### LICENSING POLICIES AND GENERAL OPERATING REQUIREMENTS

##### § 74.631 Permissible service.

(a) The license of a television pickup station authorizes the transmission of program material, orders concerning such program material, and related communications necessary to the accomplishment of such transmissions, from the scenes of events occurring in places other than a television studio, to its associated television broadcast station, to such other stations as are broadcasting the same program material, or to the network or networks with which the television broadcast station is affiliated. Television pickup stations may be operated in conjunction with other television broadcast stations not aforementioned in this paragraph: *Provided*, That the transmissions by the television pickup station are under the control of the licensee of the television pickup station and that such operation shall not exceed a total of 10 days in any 30-day period. Television pickup stations may be used to provide temporary studio-transmitter links or intercity relay circuits consistent with § 74.632 without further authority of the Commission: *Provided, however*, That prior Commission authority shall be obtained if the transmitting antenna to be installed will increase the height of any natural formation or man-made structure by more than 20 feet and will be in existence for a period of more than 2 consecutive days.

NOTE: As used in this subpart, "associated television broadcast station" means a television broadcast station licensed to the licensee of the television auxiliary broadcast station and with which the television auxiliary station is licensed as an auxiliary facility.

(b) A television broadcast STL station is authorized to transmit visual program material between the studio and the transmitter of a television broadcast station for simultaneous or delayed broadcast.

(c) A television intercity relay station is authorized to transmit visual program material between television broadcast stations for simultaneous or delayed broadcast.

(d) The transmitter of an STL, intercity relay station or television translator relay station may be multiplexed to provide additional communication channels for the transmission of aural program material and operational communications. Operational communications include voice communications, telemetry signals, alerting signals, fault reporting signals, and control signals all of which must be directly related to the technical operation of the associated broadcast television or television translator station of the STL, intercity relay or translator relay system of which the multiplexed transmitter is a part. Aural program material may include the sound accompanying the visual program material transmitted over the system or aural program material intended for broadcast by other AM, FM, or TV broadcast stations owned by or under the common control of the licensee of the television STL or intercity relay station. Multiplexing on television translator relay stations shall be limited to the sound

accompanying the visual program material and operational communications as defined in this paragraph. A television broadcast STL or intercity relay station will be authorized only in those cases where the principal use is the transmission of television broadcast program material for use by its associated TV broadcast station. However, STL or intercity relay stations so licensed may be operated at any time for the transmission of aural program material and operational communications whether or not visual program material is being transmitted, provided that such operation does not cause harmful interference to television broadcast pickup, STL or intercity relay stations transmitting television broadcast program material.

(e) Except as provided in paragraphs (a), (d), and (f) of this section, all program material transmitted over a television pickup, STL, or intercity relay station shall be used by or intended for use by a television broadcast station owned by or under the common control of the licensee of the television pickup, STL, or intercity relay station. Program material, transmitted over a television pickup, STL, or intercity relay station and so used by the licensee of such facility may, with the permission of the licensee of the broadcast auxiliary facility, be used by other television broadcast stations and by nonbroadcast closed circuit educational television systems operated by educational institutions.

(f) A television broadcast pickup, STL, or intercity relay station may, at times when it is not transmitting program material to its associated television broadcast station, be used for the transmission of program material to non-broadcast closed circuit educational television systems operated by educational institutions, provided that such use is less than 50 percent of the total use of the broadcast auxiliary facility during any one year of the license period. Use of the broadcast auxiliary facility for this purpose is subject to the condition that no harmful interference is caused to broadcast auxiliary stations operating in accordance with the basic frequency allocation. No charge either direct or indirect shall be made for this use. Licensees shall submit reports with their applications for renewals showing the breakdown of usage in terms of primary and alternate uses, during each year of the license term.

(g) Except as provided in paragraph (d) of this section, a television translator relay station is authorized for the purpose of relaying the programs and signals of a television broadcast station to television broadcast translator stations for simultaneous retransmission.

(h) Television auxiliary broadcast stations authorized pursuant to this subpart may additionally be authorized to supply programs and signals of television broadcast stations to cable television systems or CARS stations. Where the licensee of a television auxiliary broadcast station supplies programs and signals to cable television systems or CARS stations, a written contract between the parties involved shall be in effect which provides that the television auxiliary licensee

shall have exclusive control over the operation of the television auxiliary stations licensed to it and that contributions to capital and operating expenses are accepted only on a cost-sharing, non-profit basis, prorated on an equitable basis among all parties being supplied with program material. Informal requests to provide the additional service to cable television or CARS stations as discussed above may be made by letter addressed to the Federal Communications Commission with a copy of the contract attached. Records showing the cost of the service and its non-profit, cost-sharing nature shall be maintained by the television auxiliary licensee and held available for inspection by the Commission.

#### § 74.632 Licensing requirements.

(a) A license for a television pickup, television STL, or television intercity relay station will be issued only to the licensee of a television broadcast station. A separate application is required for each transmitter and the application shall be specific with regard to the frequency requested. Except as provided in § 74.604(b), the first channel assigned in Band A or Band B to a licensee will be considered to be the exclusive assignment provided in § 74.602(b). Exclusive channel assignments in Band D will be designated only upon request. A licensee may request a change in its exclusive channel assignment only where there are unassigned channels available. In making such changes, the priority set forth in § 74.602(b) will be observed.

(b) A license for a television intercity relay station may be issued in any case where the circuit will operate between television broadcast stations either by means of "off-the-air" pickup and relay or location of the initial relay station at the studio or transmitter of a television broadcast station.

(c) An application for construction permit for a new television pickup station or for renewal of license of an existing station shall designate the television broadcast station with which it is to be operated and specify the area in which the proposed operation is intended.

(d) In case a licensee has two or more television broadcast stations located in different cities, it shall, in applying for a new television pickup station or for renewal of license of an existing station, designate the television broadcasting station in conjunction with which it is to be operated principally, and it shall not thereafter operate the television pickup station in conjunction with another of its television broadcast stations located in a different city for a total of more than 10 days in any 30-day period.

(e) A license for a television translator relay station will be issued only to the licensee of a television broadcast translator station. The application for construction permit shall designate the television broadcast station to be relayed, the source of the television broadcast station's signals, and the television broadcast translator station with which it is to be operated. *However*, a television translator relay station license

may be issued to a cooperative enterprise wholly owned by licensees of television broadcast translators or licensees of television broadcast translators and cable television owners or operators upon a showing that the applicant is qualified under the Communications Act of 1934, as amended.

#### § 74.633 Temporary authorizations.

(a) Special temporary authority may be granted for the operation, as a television auxiliary broadcast station, of equipment licensed to another television broadcast station, or other class of station, or equipment of suitable design not heretofore licensed. Such authority will normally be granted only for special operation of a temporary nature.

(b) A request for special temporary authority for the operation of a television auxiliary broadcast station may be made by informal application, which shall be filed with the Commission at least 10 days prior to the date of the proposed operation: *Provided*, That an application filed within less than 10 days of the proposed operation may be accepted upon a satisfactory showing of the reasons for the delay in submitting the request.

(c) An application for special temporary authority shall set forth full particulars of the purpose for which the request is made, and shall show the type of equipment, power output, emission, and frequency or frequencies proposed to be used, as well as the time, date and location of the proposed operation. In the event that the proposed antenna installation will increase the height of any natural formation, or existing man-made structure, by more than 20 feet, a vertical plan sketch showing the height of the structure proposed to be erected, the height above ground of any existing structure, the elevation of the site above mean sea level, and the geographic coordinates of the proposed site shall be submitted with the application.

(d) A request for special temporary authority shall specify a channel or channels consistent with the provisions of § 74.602: *Provided*, That in the case of events of wide-spread interest and importance which cannot be transmitted successfully on these frequencies, frequencies assigned to other services may be requested upon a showing that operation thereon will not cause interference to established stations: *And provided further*, That in no case will a television auxiliary broadcast operation be authorized on frequencies employed for the safety of life and property.

(Sec. 318, 48 Stat. 1089, as amended; 47 U.S.C. 318)

#### § 74.634 Remote control operation.

(a) A television auxiliary station may be operated by remote control provided that such operation is conducted in accordance with the conditions listed below, and provided further that the Commission is notified at least 10 days prior to such operation and that such notification is accompanied by a detailed description of the proposed remote control installation showing the manner of compliance with the following conditions:

(1) The operating position shall be under the control and supervision of the licensee and shall be the place at which an operator meeting the requirements of § 74.665 and responsible for the operation of the transmitter is stationed;

(2) A carrier operated device shall be provided at the operating position which shall give a continuous visual indication when the transmitter is radiating; or, in lieu thereof, a device shall be provided which will give a continuous visual indication when any transmitter control circuits have been placed in a condition to produce radiation;

(3) Facilities shall be provided at the operating position which will permit the operator to turn the transmitter carrier on and off at will; and

(4) The transmitter and all of its operating controls shall be so installed and protected that they are not accessible to other than duly authorized personnel.

(b) The Commission may notify the licensee not to commence remote control operation, or to cancel, suspend, or change the date of beginning for such operation as and when such action may appear to be in the public interest, convenience, and necessity.

#### § 74.635 Unattended operation.

(a) Television intercity relay stations, television translator relay stations, and television STL stations may be operated unattended: *Provided*, That such operation is conducted in accordance with the conditions listed below: *And provided further*, That the Commission, in Washington, D.C., is notified at least 10 days prior to the beginning of such operation and that such notification is accompanied by a detailed description showing the manner of compliance with the following conditions:

(1) [Reserved]

(2) The transmitter shall be provided with adequate safeguards to prevent improper operation of the equipment;

(3) The transmitter shall be so installed and protected that it is not accessible to other than duly authorized persons;

(4) In the case of television intercity relay stations, television STL stations, and television translator stations, observations shall be made at intervals not exceeding 24 hours, at the receiving end of the microwave circuit, by a person designated by the licensee, who shall institute measures sufficient to ensure prompt correction of any condition of improper operation that is observed: *Provided, however*, That for an STL station associated with a television station operated by remote control, the observations may be made by monitoring the television station's transmitted signal at the remote control point: *And provided further*, That for a television translator relay station, the observations may be made by monitoring the associated television translator station's transmitted signal.

(5) [Reserved]

(b) The Commission may notify the licensee not to commence unattended operation, or to cancel, suspend,

or change the date of the beginning of such operation as and when such action may appear to be in the public interest, convenience, and necessity.

**§ 74.636 Power limitations.**

Transmitter peak output power shall not be greater than necessary, and in any event, shall not exceed the power listed in the table below;

Band	Power limit	Class of station
A.....	20 Watts.....	Fixed.
	12 Watts.....	Mobile.
B.....	20 Watts.....	Fixed.
	12 Watts.....	Mobile.
D.....	5 Watts.....	Fixed.
	1.5 Watts.....	Mobile.

**[§ 74.636 revised eff. 12-12-80; III(80)-1]**

**§ 74.637 Emissions and emission limitations.**

(a) TV auxiliary broadcast stations operating on frequencies above 1,000 MHz may be authorized to employ any type of emission suitable for the transmission of the visual and aural and operational signals as may be permitted under the rules of this subpart. Continuous radiation of the carrier without modulation is permitted provided harmful interference is not caused to other authorized stations.

(b) The channels assigned to TV auxiliary broadcast stations are designated by upper and lower frequency limits. Emissions outside of these frequency limits shall be attenuated as follows:

(1) Any emission appearing on a frequency above the upper channel limit or below the channel limit by between zero and 50% of the assigned channel width shall be attenuated at least 25 dB below the mean power of the emission.

(2) Any emission appearing on a frequency above the upper channel limit or below the channel limit by between 50% and 150% of the assigned channel width shall be attenuated at least 35 dB below the mean power of the emission.

(3) Any emission appearing on a frequency above the upper channel limit or below the lower channel limit by more than 150% of the assigned channel width shall be attenuated at least 43 + 10 log<sub>10</sub> (power in watts) dB below the mean power of the emission.

(c) In the event that interference to other stations is caused by emissions outside the authorized channel,

the FCC may require greater attenuation than that specified in paragraph (b) of this section.

**[§ 74.637 headnote and text revised eff. 12-12-80; III(80)-1]**

**§ 74.641 Antenna systems.**

(a) For fixed stations operating in Band D the following rules apply:

(1) Fixed TV auxiliary broadcast stations shall use directional antennas that meet the performance standards indicated in the following table. Upon adequate showing of need to serve a larger sector, or more than a single sector, greater beamwidth or multiple antennas may be authorized. Applicants shall request, and authorization for stations in this service will specify the polarization of each transmitted signal.

(2) New periscope antenna systems will be authorized upon a certification that the radiation, in a horizontal plane, from an illuminating antenna and reflector combination meets or exceeds the antenna standards of this section. This provision similarly applies to passive repeaters employed to redirect or repeat the signal from a station's directional antenna system.

(3) The choice of receiving antennas is left to the discretion of the licensee. However, licensees will not be protected from interference which results from the use of antennas with poorer performance than identified in the table of this section.

(4) The transmitting antenna system of stations employing maximum equivalent isotropically radiated power exceeding +45 dBW in the frequency band between 12.70 and 12.75 GHz shall be orientated so that the direction of maximum radiation of any antenna shall be at least 1.5° away from the geostationary satellite orbit taking into account the effect of atmospheric refraction.<sup>1</sup>

<sup>1</sup> See Chapter I, Article 1, Section III of the (International) Radio Regulations (Geneva, 1959), as amended, for Technical Characteristics Term and Definitions. Additional information and methods for calculating azimuths to be avoided may be found in the following: Report 393, International Radio Consultative Committee (C.C.I.R.): "Geostationary Orbit Avoidance Computer Program." Report CC-7202, Federal Communications Commission, available from the National Technical Information Service, Springfield, VA 22151, in printed form (PB-211 500) or source card deck (PB-211 501).

**Antenna Standards**

Frequency (in megahertz)	Category	Maximum beam-width to 3 dB (included angle in degrees)	Minimum radiation suppression at angle in degrees from centerline of main beam in dB--						
			5° to 10°	10° to 15°	15° to 20°	20° to 30°	30° to 100°	100° to 140°	140° to 180°
12, 700 to 13,200.....	A	1.0	23	28	35	39	41	42	50
	B	2.0	20	25	28	30	32	37	47

NOTE.—Stations in this service must employ an antenna that meets the performance standards for category A, except that, in areas not subject to frequency congestion antennas meeting standards for category B may be employed. Note, however, that the Commission may require the use of a high performance antenna where interference problems can be resolved by the use of such antennas.

(5) Pickup stations are not subject to the performance standards herein stated. The provisions of this paragraph are effective for all new applications accepted for filing after October 1, 1981.

(b) Any fixed station licensed pursuant to applications accepted for filing prior to October 1, 1981, may continue to use its existing antenna system, subject to periodic renewal until October 1, 1991. After October 1, 1991, all licensees are to use antenna systems in conformance to the standards of this section. TV auxiliary broadcast stations located in areas subject to frequency congestion are to employ a category A antenna when:

(1) a showing by an applicant of a new TV auxiliary broadcast station or Cable Television Relay Service (CARS) station, which shares the 12.7-13.20 GHz band with TV auxiliary broadcast, indicates that use of a category B antenna limits a proposed project because of interference, and

(2) that use of a category A antenna will remedy the interference thus allowing the project to be realized.

(c) As an exception to the provisions of this Section, the FCC may approve requests for use of periscope antenna systems where a persuasive showing is made that no frequency conflicts exist in the area of proposed use. Such approvals shall be conditioned to a standard antenna as required in paragraph (a) of this Section when an applicant of a new TV auxiliary broadcast or Cable Television Relay station indicates that the use of the existing antenna system will cause interference and the use of a category A or B antenna will remedy the interference.

(d) As a further exception to the provision of paragraph (a) of this Section, the Commission may approve antenna systems not conforming to the technical standards where a persuasive showing is made that:

(1) indicates in detail why an antenna system complying with the requirements of paragraph (a) of this section cannot be installed, and

(2) includes a statement indicating that frequency coordination as required in § 74.604(a) was accomplished.

【§ 74.641 added *eff.* 12-12-80; III(80)-1】

## EQUIPMENT

## § 74.651 Equipment changes.

(a) Commission authority, upon appropriate formal application (FCC Form 313) therefor, is required for any of the following equipment changes:

(1) A change of the transmitter as a whole (except replacement with an identical transmitter), or a change in the power output.

(2) A change of frequency assignment.

(3) A change in the location of a television STL, television intercity relay station or television translator relay station (except relocation of the equipment within the same building) or a change in the area of operation of a television pickup station.

(4) Any change in the overall height of the antenna structure, except where notice to the Federal Aviation Administration is specifically not required under § 17.14(b) of this chapter.

(5) Any change in the direction of the main radiation lobe of the transmitting antenna.

(b) Other equipment changes not specifically referred to above may be made at the discretion of the licensee provided that the Engineer in Charge of the radio district in which the station is located, and the Commission at its Washington office, are notified in writing upon the completion of such changes, and provided that the changes are appropriately reflected in the next application for renewal of license of the television auxiliary broadcast station filed by the licensee.

(c) Multiplexing equipment may be installed on any licensed television broadcast STL, intercity relay, or translator relay station without further authority of the Commission: *Provided*, That the engineer in charge of the radio district in which the station is located and the Commission in Washington, D.C., are promptly notified in writing of such addition and the use which will be made of the additional aural circuits, and that the changes are shown in the next application for renewal of license for the station.

## § 74.655 Type acceptance.

(a) Type acceptance is *not* required for transmitters used in conjunction with TV pickup stations operating with a peak output power not greater than 250 mW.

Pickup stations operating in excess of 250 mW licensed pursuant to applications accepted for filing prior to October 1, 1980, may continue operation subject to periodic renewal. If operation of such equipment causes harmful interference the FCC may at its discretion, require the licensee to take such corrective action as is necessary to eliminate the interference.

(b) The licensee of a TV auxiliary station may replace transmitting equipment with type accepted equipment, without prior FCC approval, provided the proposed changes will not depart from any of the terms of the station or system authorization or the Commission's technical rules governing this service, and also provided that any changes made to type accepted transmitting equipment is in compliance with the provisions of Part 2 of the FCC rules concerning modification to type accepted equipment.

(c) Any manufacturer of a transmitter to be used in this service may apply for type acceptance following the procedure set forth in Part 2 of the FCC Rules.

(d) An applicant for a TV auxiliary broadcast station may also apply for type acceptance for an individual transmitter by following the type acceptance procedure set forth in Part 2 of the FCC Rules and Regulations. Individual transmitters which are type accepted will not normally be included in the FCC's Radio Equipment List.

(e) Type acceptance by the FCC is required for all transmitters first licensed, or marketed as specified in § 2.803 of the FCC Rules, except as provided for in paragraph (a) (Refer to subpart I of Part 2 of the Commission's Rules and Regulations). This paragraph is effective October 1, 1981.

(f) All transmitters marketed for use under this Subpart must be type accepted by the Federal Communications Commission. TV auxiliary broadcast station transmitting equipment authorized to be used pursuant to an application accepted for filing prior to October 1, 1985, may continue to be used by the licensee or its successors or assignees, provided, that if operation of such equipment causes harmful interference due to its failure to comply with the technical standards set forth in this subpart, the FCC may, at its discre-

tion require the licensee to take such corrective action as is necessary to eliminate the interference. However, such equipment may *not* be further marketed for reuse under Parts 74 or 78. This paragraph is effective October 1, 1985.

(g) Each instrument of authority which permits operation of a TV auxiliary broadcast station or system using equipment which has not been type accepted will specify the particular transmitting equipment which the licensee is authorized to use.

【§ 74.655 added eff. 12-12-80; III (80)-1】

#### TECHNICAL OPERATION AND OPERATORS

##### § 74.661 Frequency tolerance.

(a) The licensee of a TV auxiliary broadcast station shall maintain the operating frequency of its station so that 99% of the sideband energy shall fall within the assigned channel.

(b) Television STL stations transmitting the aural portion of television broadcast program material over an aural broadcast STL or intercity relay station licensed under the provisions of Subpart E of this part shall maintain the operating frequency of such aural broadcast STL or intercity relay station within 0.005% of the assigned frequency.

(c) Television translator relay stations shall maintain their operating frequency within 0.002 percent of the assigned frequencies: *Provided, however,* That frequency modulated television translator relay stations shall maintain their operating frequency within 0.005% of the assigned frequencies.

【§ 74.661(a) revised eff. 12-12-80; III(80)-1】

##### § 74.662 Frequency monitors and measurements.

The licensee of a television auxiliary broadcast station shall provide means for measuring the operating frequency in order to insure that the emissions are confined to the authorized channel. The date and time of each frequency check, the frequency as measured and a description or identification of the method employed shall be entered in the station log.

**§ 74.663 Modulation limits.**

If amplitude modulation is employed, negative modulation peaks shall not exceed 100%.

【§ 74.663 headnote and text revised eff. 12-12-80; III (80)-1】

**§ 74.664 Station and operator licenses; posting of.**

(a) The station license and any other instrument of authorization or individual order concerning the construction of the equipment or manner of operation of the station shall be posted so that all terms thereof are visible in a conspicuous place in the room in which the transmitter is located: *Provided*:

(1) If the transmitter operator is located at a distance from the transmitter pursuant to § 74.634, the station license shall be posted in the above-described manner at the operating position.

(2) If the station is licensed for mobile operation, the station license or a photo copy thereof shall be affixed to the equipment or kept in the possession of the operators on duty at the transmitter. If a photo copy is used, the original license shall be available for inspection by an authorized government representative.

(3) In cases where the transmitter is operated unattended pursuant to the provisions of § 74.635 the call sign of the unattended station and the name of the licensee, together with the call sign and location of the TV broadcast station(s) with which it operates as an auxiliary, shall be displayed at the transmitter site on the structure supporting the transmitting antenna so as to be visible to a person standing on the ground or other easily accessible point. The display shall be prepared so as to withstand normal weathering over a reasonable period of time and shall be maintained in a legible condition at all times. The station license and other documents referred to in this paragraph, shall be kept in the files of the television broadcast station with which it is licensed as an auxiliary.

(b) The original license of each station operator shall be posted at the place where he is on duty: *Provided, however*, That if the original license of a station operator is posted at another radio transmitting station in accordance with the rules governing that class of station and is there available for inspection by an authorized Commission representative, a duly issued verified statement (Form 750) may be posted at the television auxiliary broadcast station in lieu of such original license: *And provided further*, That if the television auxiliary broadcast station is licensed for mobile operation, a duly issued verification card (Form 758-F) attesting to the existence of such original license may be carried on the person of the operator in lieu of the posting of such license or verified statement.

NOTE: The term mobile as here used is intended to include any type of mobile operation.

**§ 74.665 Operator requirements.**

(a) Except for unattended transmitters, an operator designated by the licensee must be on duty either at the

transmitter location or authorized remote control location in charge of the transmitting apparatus during the operation of a television broadcast auxiliary station.

(b) Transmitters that do not require adjustments during normal operations that could result in off-frequency or unauthorized radiations may be operated by any person designated by the licensee. Transmitters that require adjustments during normal operation which could result in off-frequency operation or unauthorized radiations may be operated only by persons holding first-class or second-class radiotelephone operator licenses.

(c) Unattended transmitters operated under the provisions of § 74.635 do not require continuous attendance by a duty operator during normal operation.

(d) Television pickup stations may be operated in accordance with the following:

(1) Stations operating on frequencies in Bands A, B, or D with less than 250 mW, may be operated by any person whom the licensee shall designate. Pursuant to this provision, the designated person shall perform as the licensee's agent and proper operation of the station shall remain the licensee's responsibility.

(2) Television pickup stations operating in Band A, B, or D with nominal transmitter power in excess of 250 mW, may be operated by any person whom the licensee shall designate, provided a person holding a valid radiotelephone first-class or radiotelephone second-class license is on duty at the receiving end of the circuit to supervise operation and immediately institute measures sufficient to assure prompt correction of any condition of improper operation that is observed.

(e) Any tests or adjustments performed in connection with installation, servicing, or maintenance of a television auxiliary broadcast station which may affect its proper operation shall be performed by, or under the immediate supervision of a person holding a valid radiotelephone first- or second-class license.

(f) Notwithstanding any other provision of this section, any person may, if directed to do so by the operator on duty and in charge of a television auxiliary broadcast station, turn the station's transmitter on or off.

(g) The operator on duty and in charge of a television auxiliary broadcast station may, at the discretion of the licensee, be employed for other duties; however, such duties shall not interfere with operation of the television auxiliary broadcast station.

【§ 74.665(d)(1) and (2) revised eff. 12-12-80; III (80)-1】

**§ 74.666 Antenna structure, marking and lighting.**

The painting and lighting of antenna structures employed by stations licensed under this subpart, where required, will be specified in the authorization issued by the Commission. Section 74.22 and Part 17 of this chapter set forth the conditions under which painting and lighting will be required and the responsibility of the licensee with regard thereto.

**§ 74.667 Additional orders.**

In case the rules contained in this part do not cover all phases of operation or experimentation with respect to external effects, the Commission may make supplemental or additional orders in each case as may be deemed necessary.

**§ 74.669 Station inspection.**

The licensee of each TV auxiliary broadcast station shall make the station available for inspection by representatives of the Commission at any reasonable hour.

【§ 74.669 added eff. 12-12-80; III(80)-1】

**OTHER OPERATING REQUIREMENTS****§ 74.681 Logs and records.**

(a) The licensee of a TV auxiliary broadcast station system shall, for each station or system separately licensed, maintain an operating log in which entries shall be made in accordance with the following:

(1) If the instrument of authorization requires painting and lighting of an antenna structure:

(i) Entries required by § 17.49(a), (b), and (c) of the FCC rules concerning the time the tower lights are turned on and off each day if manually controlled, the time the daily check of proper operation of the tower lights was made if automatic alarm system is not provided, and any observed failure of the lighting system. See § 17.47(a) for daily tower lighting observation or automatic alarm system requirements.

(ii) Entries required by § 17.49(d) of the FCC rules concerning quarterly inspections of the condition of the tower lights and associated control equipment; when adjustments, replacement of repairs are made to insure compliance with the lighting requirements; and when towers are cleaned or repainted as required by § 17.50.

(2) An entry of frequency measurements made pursuant to § 74.662.

(3) An entry when service or maintenance is performed on any transmitter, if such service or maintenance could affect proper operation. The entry shall include a description of the work performed, the date and the signature and license serial number of the operator performing the service or maintenance duties or under whose supervision such duties have been performed.

(4) Entries as specifically requested by the F.C.C.

(b) Entries in the operating log shall be made by a person having knowledge of the facts entered. That person shall sign and date the log but the licensee is not to be relieved of its responsibility to maintain complete and accurate logs and records.

(c) TV auxiliary broadcast station or system logs and records may be kept at any location convenient to

the licensee. The log and records must be readily available for inspection by a duly authorized representative of the FCC upon request. Logs and records must be retained for a period of two years.

【§ 74.681 amended eff. 4-30-80; III(80)-1】

**§ 74.682 Station identification.**

(a) Each TV broadcast auxiliary station operating with a transmitter output power of 1 watt or more must, when actually transmitting programs, transmit station identification at the beginning and end of each period of operation, and hourly, as close to the hour as feasible, at a natural break in program offerings by one of the following means:

(1) Transmission of its own call sign by visual or aural means or by automatic transmission in international Morse telegraphy.

(2) Visual or aural transmission of the call sign of the TV broadcast station with which it is licensed as an auxiliary.

(3) Visual or aural transmission of the call sign of the TV broadcast station whose signals are being relayed or, where programs are obtained directly from network lines and relayed, the network identification.

(b) Identification transmissions during operation need not be made when to make such transmission would interrupt a single consecutive speech, play, religious service, symphony concert, or any type of production. In such cases, the identification transmission shall be made at the first interruption of the entertainment continuity and at the conclusion thereof.

(c) During occasions when a television pickup station is being used to deliver program material for network distribution it may transmit the network identification in lieu of its own or associated TV station call sign during the actual program pickup. However, if it is providing the network feed through its own associated TV broadcast station it shall perform the station identification required by paragraph (a) of this section at the beginning and end of each period of operation.

(d) A period of operation is defined as a single uninterrupted transmission or a series of intermittent transmissions from a single location or continuous or intermittent transmission from a television pickup station covering a single event from various locations, within a single broadcast day.

(e) Regardless of the method used for station identification it shall be performed in a manner conducive to prompt association of the signal source with the responsible licensee. In exercising the discretion provided by this rule, licensees are expected to act in a responsible manner to assure that result.

(f) [Reserved]

## SUBPART G—TELEVISION BROADCAST TRANSLATOR STATIONS

### DEFINITIONS AND ALLOCATION OF FREQUENCIES

#### § 74.701 Definitions.

(a) *Television broadcast translator station.* A station in the broadcast service operated for the purpose of retransmitting the programs and signals of a television broadcast station, without significantly altering any characteristic of the original signal other than its frequency and amplitude, for the purpose of providing television reception to the general public.

(b) *Primary station.* The television broadcast station which provides the programs and signals being retransmitted by a television broadcast translator station.

(c) *VHF translator.* A television broadcast translator station operating on a VHF television broadcast channel.

(d) *UHF translator.* A television broadcast translator station operating on a UHF television broadcast channel.

(e) *UHF translator signal booster.* A station in the broadcasting service operated for the sole purpose of retransmitting the signals of a UHF translator station by amplifying and reradiating such signals which have been received directly through space, without significantly altering any characteristic of the incoming signal other than its amplitude.

#### § 74.702 Frequency assignment.

(a) An applicant for a new television broadcast translator station or for changes in the facilities of an authorized station shall endeavor to select a channel on which its operation is not likely to cause interference to the reception of other stations. The application must be specific with regard to the frequency requested. Only one channel will be assigned to each station.

(b) (1) Any one of the 12 standard VHF channels (2–13 inclusive) may be assigned to a VHF translator on condition that no interference is caused to the direct reception by the public of the signals of any television broadcast station operating on the same or any adjacent channel. Channels 5 and 6 are allocated for nonbroadcast use in Alaska and Hawaii and will not be assigned to a VHF translator in those States.

(2) A VHF translator will also be authorized on any VHF assignment in the television Table of Assignments (§ 73.606 (b) of this Chapter) provided it has not been assigned to a television broadcast station and provided a transmitter power of 100 watts peak visual power is used in the listed city. Section 73.607 (b) of this Chapter will not be applicable to such assignments.

(c) (1) Any one of the 15 UHF channels from 55–69, inclusive, may be assigned to a UHF translator of up to and including 100 watts peak visual transmitter output power.

(2) The transmitter site of a UHF translator operating on a channel not listed in the Television Table of Assignments (§ 73.606 (b) of this Chapter) shall not be located:

(i) Within 155 miles of a television broadcast station operating on an assigned channel which is the same as the requested channel;

(ii) Within 55 miles of a television broadcast station operating on an assigned channel which is adjacent to the requested channel;

(iii) Within 20 miles of a television broadcast station operating on an assigned channel which is the second, third, fourth, fifth, or eighth channel above or below the requested channel;

(iv) Within 60 miles of a television broadcast station operating on an assigned channel which is the seventh or 14th channel above or below the requested channel;

(v) Within 75 miles of a television broadcast station operating on an assigned channel which is the 15th channel above or below the requested channel.

(3) The distance specified in this paragraph shall be determined between the proposed site of the translator and the transmitter site of the television broadcast station. Changes in the Television Table of Assignments (§ 73.606 (b) of this Chapter) may be made without regard to existing or proposed television broadcast translator stations and, where such changes result in minimum separations less than those specified above, the licensee of an affected UHF television broadcast translator station shall file an application for a change in channel assignment to comply with the required separations. In the case of changes in the Television Table of Assignments affecting VHF channels, existing VHF television broadcast translator stations causing interference to reception of VHF broadcast channels shall eliminate the interference or file an application for a change in channel assignment.

(d) Any one of the UHF channels from 14 through 54 (except channel 37) may also be assigned to a UHF translator station meeting the minimum spacing requirements of paragraph (c), of this Section, provided that an adequate showing is made that it is not possible to assign a UHF translator station on a channel from 55 through 69 in the area to be served and meet the requirements of paragraph (c) of this Section, and that the highest available channel in the 14–54 range has been selected.

(e) No minimum distance separation between TV translators operating on the same channel is specified. However, assignments which will obviously result in mutual interference between translators will not be made.

(f) Adjacent channel assignments will not be made to television broadcast translator stations intended to serve all or a part of the same area.

(g) A UHF translator will be authorized on any UHF channel which is listed in the Television Table of Assignments (§ 73.606 (b) of this chapter) and has not been assigned to a television broadcast station:

*Provided, however,* That a UHF translator using transmitter power of 1,000 watts may be authorized on a channel which has been assigned to a television broadcast station if the television broadcast station is not in operation. Section 73.607 (b) of this Chapter will not be applicable to 100-watt translators operating on assigned channels.

(h) In accordance with § 73.603 (c) of this Chapter, channel 37 will not be assigned to UHF translator stations.

(i) No applications for new television translator stations or for changes of existing television translator stations, specifying operation on output channels from 70 through 83, will be accepted for filing. Translator stations operating on those channels and holding valid licenses as of the above date will be afforded protection for the balance of their license terms. License renewals will be granted only on a secondary basis to land mobile radio operations.

(j) Any party who files an application for a 1,000-watt UHF translator to operate on a channel to which a regular television station is assigned but not operating, shall notify the licensee or permittee of the television station, in writing, of the filing of the application and shall certify to the Commission that such notice has been given.

#### § 74.703 Interference.

(a) An application for a new television broadcast translator station or for changes in the facilities of an authorized station will not be granted where it is apparent that interference will be caused. The licensee of a new UHF translator operating on a channel not listed in the Television Table of Assignments (§ 73.606 (b) of this chapter) shall protect existing UHF translators from interference resulting from its operation. If interference develops between VHF translators, the problem shall be resolved by mutual agreement among the licensees involved. VHF and UHF translator stations operating on channels not listed in the Television Table of Assignments shall not be entitled to protection from interference by translators operating on channels listed in the Television Table of Assignments, but shall, in all cases, protect translators operating on listed channels from interference.

(b) It shall be the responsibility of the licensee of a VHF translator to correct at its expense any condition of interference to the direct reception of the signals of a television broadcast station operating on the same channel as that used by the VHF translator or on an adjacent channel, which occurs as the result of the operation of the translator. Interference will be considered to occur whenever reception of a regularly used signal is impaired by the signals radiated by the translator, regardless of the quality of such reception or the strength of the signal so used. If the interference cannot be promptly eliminated by the application of suitable techniques, operation of the offending translator shall be suspended and shall not be resumed until the interference has been eliminated. If

the complainant refuses to permit the translator licensee to apply remedial techniques which demonstrably will eliminate the interference without impairment of the original reception, the licensee of the translator is absolved of further responsibility.

(c) It shall be the responsibility of the licensee of a television broadcast translator station to correct any condition of interference which results from the radiation of radio frequency energy by its equipment on any frequency outside the assigned channel. Upon notice by the Commission to the station licensee or operator that such interference is being caused, the operation of the television broadcast translator station shall be suspended immediately and shall not be resumed until the interference has been eliminated or it can be demonstrated that the interference is not due to spurious emissions by the television broadcast translator station: *Provided, however,* That short test transmissions may be made during the period of suspended operation to check the efficacy of remedial measures.

(d) In each instance where suspension of operation is required, the licensee shall submit a full report to the Commission after operation is resumed, containing details of the nature of the interference, the source of the interfering signals, and the remedial steps taken to eliminate the interference.

#### LICENSING POLICIES AND GENERAL OPERATING REQUIREMENTS

##### § 74.731 Purpose and permissible service.

(a) Television broadcast translator stations provide a means whereby the signals of television broadcast stations may be retransmitted to areas in which direct reception of such television broadcast stations is unsatisfactory due to distance or intervening terrain barriers.

(b) Except as provided in paragraph (f) of this Section, a television broadcast translator station may be used only to receive the signals of a television broadcast station, another television broadcast translator station, a television translator relay station, a television intercity relay station, a television STL station, or other suitable source such as a CARS or common carrier microwave station, for the simultaneous retransmission of the programs and signals of a television broadcast station. Such retransmission may be accomplished by either:

(1) Reception of the television programs and signals of a television broadcast station directly through space, conversion to a different channel by simple heterodyne frequency conversion and suitable amplification; or,

(2) Modulation and amplification of a video and audio feed, in which case modulating equipment meeting the requirements of § 74.750 (d) shall be used.

(c) The transmissions of each television broadcast translator station shall be intended for direct reception by the general public and any other use shall be incidental thereto. A television broadcast translator station shall not be operated solely for the purpose of relaying signals to one or more fixed receiving points for retransmission, distribution, or further relaying.

(d) The technical characteristics of the retransmitted signals shall not be deliberately altered so as to hinder reception on conventional television broadcast receivers.

(e) A television broadcast translator station shall not deliberately retransmit the signals of any station other than the station it is authorized by license to retransmit. Precautions shall be taken to avoid unintentional retransmission of such other signals.

(f) A locally generated radio frequency signal similar to that of a TV broadcast station and modulated with visual and aural information may be connected to the input terminals of a television broadcast translator for the purpose of transmitting still photographs, slides and voice announcements. The radio frequency signals shall be on the same channel as the normally used off-the-air signal being rebroadcast. When transmitting originations concerning financial support, connection of the locally generated signals shall be made automatically either by means of a time-switch or upon receipt of a control signal from the TV station being rebroadcast designed to actuate the switching circuit. The switching device shall be so designed that the translator input circuit will be returned to the off-the-air signal within 30 seconds. The connection for emergency transmissions may be made manually. The apparatus used to generate the local signal which is used to modulate the translator must be capable of producing a visual or aural signal or both which will provide acceptable reception on television receivers designed for the transmission standards employed by TV broadcast stations. The visual and aural materials so transmitted shall be limited to emergency warnings of

imminent danger and to seeking or acknowledging financial support deemed necessary to the continued operation of the translator. Accordingly, the originations concerning financial support are limited to 30 seconds no more than once an hour and to the solicitation of contributions toward defrayal of the costs of installing, operating and maintaining the translator or acknowledgements of financial support for those purposes. Such acknowledgements may include identification of the contributors, the size or nature of the contributions and advertising messages of contributors. Emergency transmissions shall be no longer or more frequent than necessary to protect life and property.

【§ 74.731(f) amended eff. 7-7-80; III(80)-1】

#### § 74.732 Eligibility and licensing requirements.

(a) Subject to the restrictions set forth in paragraph (e) of this section, a license for a television broadcast translator station may be issued to any qualified individual, organized group of individuals, broadcast station licensee, or local civil governmental body, upon an appropriate showing that plans for financing the installation and operation of the station are sufficiently sound to insure prompt construction of the station and dependable service for the duration of the licensed period.

(b) More than one television broadcast translator station may be licensed to the same applicant, whether or not such stations serve substantially the same area. TV translators operated by TV broadcast station licensees are not counted for purposes of § 73.636 of this Chapter, concerning multiple ownership.

(c) Only one channel will be assigned to each television broadcast translator station. Additional television broadcast translator stations may be authorized to provide additional reception. A separate application is required for each television broadcast translator station and each application shall be complete in all respects.

(d) A VHF translator will not be authorized to serve an area which is receiving satisfactory service from one or more UHF television broadcast stations or UHF translators unless, upon consideration of all applicable public interest factors, it is determined that, exceptionally, such intermixture of VHF and UHF service is justified.

(e) The licensee or permittee of a television broadcasting station, an applicant for a proposed new VHF translator whose application is financially supported by such licensee or permittee, or any person associated with the licensee or permittee, either directly or indirectly, will not be authorized to operate a VHF translator under any of the following circumstances:

(1) Where the proposed translator is intended to provide reception to places which are beyond the Grade B contour of the television broadcast station proposed to be rebroadcast and within the Grade B contour of another television broadcast station assigned to a different principal city: *Provided, however*, That this prohibition will not apply to translators using 100 watts on assignments in the Television Table of Assignments (§ 73.606(b) of this chapter).

(2) Where the proposed VHF translator is intended to provide reception to all or a part of any community located within the Grade A contour of any other television broadcast station for which a construction permit or license has been granted and the programs rebroadcast by the proposed VHF translator will duplicate all or any part of the programs broadcast by such other television broadcast station or stations: *Provided, however*, That this will not preclude the authorization of a VHF translator intended to improve reception of the parent station's signal to any community, any part of the corporate limits of which is within the principal city service contour of such station.

NOTE 1: The contours of a television broadcast station shall be determined in accordance with the procedures set forth in § 73.684 of this chapter.

NOTE 2: Financial support referred to in paragraph (e) of this section includes only support for the preparation,

filing and prosecution of applications for new VHF television broadcast translator stations, for the acquisition and installation of transmitting and other apparatus employed by such new VHF translator stations, and for the defrayal of any other costs necessary to placing such new VHF translator stations in operation. Paragraph (e) thus will not bar or limit contributions or support, by any station licensee or permittee or any other person defined in paragraph (e) of this section, for the operation or maintenance of a translator, whether such support is provided in the form of financial contributions or by providing or maintenance services.

(f) Any authorization for a VHF translator issued to an applicant described in paragraph (e) of this Section will be issued subject to the condition that it may be terminated at any time, upon not less than sixty (60) days notice where the circumstances in the community or area served are so altered as to have prohibited grant of the application had such circumstances existed at the time of its filing.

(g) Paragraphs (e) and (f) of this Section will not be applicable to noncommercial educational stations.

(h) The Commission will not act on applications for new television broadcast translator stations or for changes in the facilities of an existing station where such changes will result in an increase in signal range in any horizontal direction until 30 days have elapsed since the date on which "Public Notice" is given by the Commission of acceptance for filing of such application, in order to afford licensees of existing television broadcast stations an opportunity to comment with respect to the effect of the proposed translator on their operations.

(i) VHF translators proposed to be operated with power of 100 watts and UHF translators proposed to be operated with power of 1,000 watts will normally be authorized only to licensees of regular television broadcast stations. Other parties may be authorized to operate such stations upon a satisfactory showing that they have available personnel of sufficient technical knowledge to insure that no interference will occur to other radio services and that satisfactory technical performance will be maintained.

**§ 74.733 UHF translator signal boosters.**

(a) The licensee of a UHF television broadcast translator station may be authorized to operate one or more signal boosters for the purpose of providing reception to small shadowed areas within the area intended to be served by the translator.

(b) The transmitting apparatus shall consist of a simple linear radio frequency amplifier, with one or more amplifying stages, which is capable of receiving, amplifying, and retransmitting the signals of the parent translator without significantly altering any electrical characteristic of the received signal other than its amplitude. The maximum power input to the plate of the final radio frequency amplifier shall not exceed 5 watts.

(c) The amplifier shall be equipped with suitable circuits which will automatically cause it to cease radiating if no signal is being received from the parent translator station. Care shall be taken in the design of the apparatus to insure that out-of-band radiation is not excessive and that adequate isolation is maintained between the input and output circuits to prevent unstable operation.

(d) The installation of the apparatus and its associated receiving and transmitting antennas shall be in accordance with accepted principles of good engineering practice. Either horizontal, vertical, or circular polarization of the electric field of the radiated signal may be employed. If the isolation between the input and output circuits depends in part upon the polarization or directive properties of the transmitting and receiving antennas, the installation shall be sufficiently rugged to withstand the normal hazards of the environment.

(e) The operation of a UHF translator signal booster is subject to the condition that no harmful interference is caused to the reception of any station, broadcast or non-broadcast, other than the parent translator. The licensee of the UHF translator signal booster is expected to use reasonable diligence to minimize interference to the direct reception of the parent translator station.

(f) UHF translator signal boosters may be operated unattended. Repairs and adjustments shall be made by a qualified person. The required qualifications are set forth in § 74.750 (g) and (h).

(g) An individual call sign will not be assigned to a UHF translator booster station. The retransmission of the call sign of the parent translator will serve as station identification.

(h) Applications for authority to construct and operate a UHF translator signal booster shall be submitted on FCC Form 346A. No construction of facilities or installation of apparatus at the proposed transmitter site shall be made until a construction permit therefor has been issued by the Commission.

(i) The provisions of § 74.765 concerning posting of station license shall apply to a UHF translator signal booster except that the parent UHF translator call sign, followed by the word "Booster", shall be displayed at the signal booster site.

(j) The provisions of §§ 74.767 and 74.781 concerning marking and lighting of antenna structures and station records, respectively, apply to UHF translator signal booster.

NOTE: Effective July 11, 1975, no new UHF signal boosters will be authorized. Licensees of such existing boosters may make application for renewal of license or change in facilities on the applicable FCC forms for Television Broadcast Translator Stations (Form 346, for construction permits; 347, for license to cover construction permit; and 348, for renewal of license). Report and Order, Docket No. 20372, May 28, 1975.

**§ 74.734 Unattended operation.**

(a) A television broadcast translator station may be operated without a licensed radio operator in attendance if the following requirements are met:

(1) If the transmitter site cannot be reached promptly at all hours and in all seasons, means shall be provided so that the transmitting apparatus can be turned on and off at will from a point which is readily accessible at all hours and in all seasons.

(2) The transmitter shall also be equipped with



suitable automatic circuits which will place it in a nonradiating condition in the absence of a signal on the input channel.

(3) The transmitting apparatus and the on-and-off control, if at a location other than the transmitter site, shall be adequately protected against tampering by unauthorized persons.

(4) The Commission shall be supplied with the name, address, and telephone number of a person or persons who may be contacted to secure suspension of operation of the translator promptly should such action be deemed necessary by the Commission. Such information shall be kept current by the licensee.

(5) In cases where the antenna and supporting structure are considered to be a hazard to air navigation and are required to be painted and lighted under the provisions of Part 17 of this Chapter, the licensee shall make suitable arrangements for the daily inspection and logging of the hazard markings required by §§ 17.37 and 17.38 of this Chapter.

(6) In the case of television translator stations employing modulating equipment, observation of the television translator station signals shall be made for ten continuous minutes each day, by a person designated by the licensee, who shall institute measures sufficient to assure prompt correction of any condition of improper operation that is observed.

(b) An application for authority to construct a new television broadcast translator station or to make changes in the facilities of an authorized station, and which proposes unattended operation, shall include an adequate showing as to the manner of compliance with this section.

(c) Unless the applicant specifically requests unattended operation and makes the showing required by paragraph (b) of this Section, a person meeting the requirements of § 74.766 shall be on duty at the transmitter site whenever the station is operated.

(Sec. 318, 48 Stat. 1089, as amended; 47 U.S.C. 318)

#### § 74.735 Power limitation.

(a) The power output of the final radiofrequency amplifier of a VHF translator (except as provided for in paragraph (d) of this section) shall not exceed 1 watt peak visual power if serving areas or communities east of the Mississippi River or 10 watts if serving areas or communities west of the Mississippi River or in Alaska or Hawaii. A UHF translator shall be limited (except as provided for in paragraph (e) of this section) to a maximum of 100 watts peak visual power. In no event shall the transmitting apparatus be operated with power output in excess of the manufacturer's rating. The power output of the final radio amplifier of a VHF or UHF translator may be fed into a single transmitting antenna or may be divided between two or more transmitting antennas or antenna arrays in any manner found useful or desirable by the licensee.

(b) In individual cases, the Commission may authorize the use of more than one final radio frequency amplifier at a single VHF or UHF translator station

(except those stations operating on channels listed in the Television Table of Assignments), under the following conditions:

(1) Each such amplifier shall be used to serve a different community or area. More than one final radiofrequency amplifier will not be authorized to provide service to all or part of the same community or area.

(2) Each final radiofrequency amplifier shall feed a separate transmitting antenna or antenna array. The transmitting antennas or antenna arrays shall be so designed and installed that the outputs of the separate radiofrequency amplifiers will not combine to reinforce the signals radiated by the separate antennas or otherwise achieve the effect of radiated power in any direction in excess of that which could be obtained with a single antenna of the same design fed by a radiofrequency amplifier with power output no greater than that authorized pursuant to paragraph (a) of this Section.

(3) A translator employing multiple final radiofrequency amplifiers will be licensed as a single station. The separate final radiofrequency amplifiers will not be licensed to different licensees.

(c) No limit is placed upon the effective radiated power which may be obtained by the use of horizontally or vertically directive transmitting antennas.

(d) VHF translators authorized on channels listed in the television Table of Assignments (§ 73.606 (b) of this chapter) will be authorized power output of the final radio frequency amplifier of 100 watts peak visual power only. VHF translators authorized before August 16, 1965, on such allocated channels need not operate with as much as 100 watts peak visual power, but if they operate with less, their operation will be subject to termination upon grant of an application for the channel proposing power of 100 watts.

(e) UHF translators authorized on channels listed in the television Table of Assignments (§ 73.606 (b) of this chapter) will be authorized with a peak visual power output of the final radio frequency amplifier of either 100 watts or 1,000 watts only. UHF translators authorized before November 15, 1971, on such channels need not operate with as much as 1,000 watts peak visual power, but if they operate with less, their operation will be subject to termination upon grant of an application for the channel proposing power of 1,000 watts.

#### § 74.736 Emissions and bandwidth.

(a) The license of a television broadcast translator station authorizes the transmission of the visual signal by amplitude modulation (A5) and the accompanying aural signal by frequency modulation (F3).

(b) Standard width television channels will be assigned and the transmitting apparatus shall be operated so as to limit spurious emissions to the lowest practicable value. Any emissions including intermodulation products and radio frequency harmonics which are not essential for the transmission of the desired picture and sound information shall be consid-

ered to be spurious emissions.

(c) Any emissions appearing on frequencies more than 3 MHz above or below the upper and lower edges, respectively, of the assigned channel shall be attenuated no less than:

(i) 30 dB for transmitters rated at no more than 1 watt power output.

(ii) 50 dB for transmitters rated at more than 1 watt power output.

(iii) 60 dB for transmitters rated at more than 100 watts power output.

(d) Greater attenuation than that specified in paragraph (c) of this Section may be required if interference results from emissions outside the assigned channel.

#### § 74.737 Antenna location.

(a) An applicant for a new television broadcast translator station or for a change in the facilities of an authorized station shall endeavor to select a site which will provide a line-of-sight transmission path to the entire area intended to be served and at which there is available a suitable signal from the primary station. The transmitting antenna should be placed above growing vegetation and trees lying in the direction of the area intended to be served, to minimize the possibility of signal absorption by foliage.

(b) A site within 5 miles of the area intended to be served is to be preferred if the conditions in paragraph (a) of this Section can be met.

(c) Consideration should be given to accessibility of the site at all seasons of the year and to the availability of facilities for the maintenance and operation of the television broadcast translator station.

(d) The transmitting antenna should be located as near as is practical to the transmitter to avoid the use of long transmission lines and the associated power losses.

(e) Consideration should be given to the existence of strong radio frequency fields from other transmitters at the translator site and the possibility that such fields may result in the retransmission of signals originating on frequencies other than that of the primary station.

#### EQUIPMENT

#### § 74.750 Transmitters and associated equipment.

(a) Applications for new television broadcast translators and for increased transmitter power for previously authorized translators will not be accepted unless the new transmitting apparatus to be employed is type accepted.

(b) Transmitting antennas, antennas used to receive the signals to be rebroadcast, and transmission lines do not have to be type accepted. External preamplifiers may also be used provided that they do not cause improper operation of the translator and compliance with specifications in paragraph (c) of this Section does not depend upon the use of such preamplifiers.

(c) The following requirements must be met before translator equipment will be type accepted by the Commission:

(1) The equipment shall be so designed that the electrical characteristics of a standard television signal introduced into the input terminals will be maintained at the output. The overall response of the apparatus within its assigned channel, when operating at its rated power output and measured at the output terminals, shall provide a smooth curve, varying within limits separated by no more than 4 dB: *Provided, however,* That means may be provided to reduce the amplitude of the aural carrier below those limits, if necessary to prevent intermodulation which would mar the quality of the retransmitted picture or result in emissions outside of the assigned channel.

(2) Radio frequency harmonics of the visual and aural carriers, measured at the output terminals of the transmitter, shall be attenuated no less than 60 dB below the peak visual output power within the assigned channel. All other emissions appearing on frequencies more than 3 megahertz above or below the upper and lower edges, respectively, of the assigned channel shall be attenuated no less than:

(i) 30 dB for transmitters rated at no more than 1 watt power output.

(ii) 50 dB for transmitters rated at more than 1 watt power output.

(iii) 60 dB for transmitters rated at more than 100 watts power output.

(3) When subjected to variations in ambient temperature between minus 30 degrees and plus 50 degrees Centigrade and variations in power main voltage between 85 percent and 115 percent of rated power supply voltage, the local oscillator frequency stability shall maintain operating frequency within:

(i) 0.02 percent of its rated frequency for transmitters rated at no more than 100 watts peak visual power.

(ii) 0.002 percent of the rated frequency for transmitters rated at more than 100 watts peak visual power.

(4) The apparatus shall contain automatic circuits which will maintain the peak visual power output constant within 2 dB when the strength of the input signal is varied over a range of 30 dB and which will not permit the peak visual power output to exceed the maximum rated power output under any condition. If a manual adjustment is provided to compensate for different average signal intensities, provision shall be made for determining the proper setting for the control, and if improper adjustment of the control could result in improper operation, a label shall be affixed at the adjustment control bearing a suitable warning.

(5) The apparatus shall be equipped with automatic controls which will place it in a non-radiating condition when no signal is being received on the input channel, either due to absence of a transmitted signal or failure of the receiving portion of the translator.

The automatic control may include a time delay feature to prevent interruptions in the translator operation caused by fading or other momentary failures of the incoming signal.

(6) The tube or tubes employed in the final radio frequency amplifier shall be of the appropriate power rating to provide the rated power output of the translator. The normal operating constants for operation at the rated power output shall be specified. The apparatus shall be equipped with suitable meters or meter jacks so that appropriate voltage and current measurements may be made while the apparatus is in operation.

(7) Transmitters of over 1 watt peak visual power shall be equipped with an automatic keying device which will transmit the call sign assigned to the station, in International Morse Code, at least once each 60 minutes during the time the station is in operation, unless the translator licensee has in effect an agreement with the TV station being rebroadcast to transmit aurally or visually the translator call sign as provided in § 74.783. Transmission of the call sign can be accomplished by:

(i) frequency shift keying; the aural and visual carrier shift shall not be less than 5 kHz or greater than 25 kHz.

(ii) amplitude modulation of the aural carrier of at least 30% modulation. The audio frequency tone used shall not be within 200 Hz of the Emergency Broadcast System Attention Signal alerting frequencies.

(8) Wiring, shielding, and construction shall be in accordance with accepted principles of good engineering practice.

(d) Television translator equipment employing a modulation process for its rebroadcasting function must additionally meet the following requirements:

(1) The equipment shall meet the requirements of § 73.687 (a) and (b) at the final RF output terminal.

(2) The stability of the equipment shall be sufficient to maintain the operating frequency of the aural carrier to 4.5 MHz $\pm$ 1kHz above the visual carrier when subjected to variations in ambient temperature between  $-30^{\circ}$  and  $+50^{\circ}$  centigrade and variations in power main voltage between 85 and 115% of rated power supply voltage.

(e) Type acceptance will be granted only upon a satisfactory showing that the apparatus is capable of meeting the requirements of paragraphs (c) and (d) of this section. The following procedures shall apply:

(1) Any manufacturer of apparatus intended for use at television broadcast translator stations may request type acceptance by following the procedures set forth in Part 2, Subpart J, of this Chapter. Equipment found to be acceptable by the Commission will be listed in the "Radio Equipment List" published by the Commission. These lists are available for inspection at any field office of the Commission and at the Washington, D.C., offices of the Commission.

(2) Television broadcast translator apparatus which has been type accepted by the Commission will normally be authorized without additional measurements by the applicant.

(3) [Reserved]

(4) Other rules concerning type acceptance, including information regarding withdrawal of type acceptance, modification of type accepted equipment and limitations on the findings upon which type acceptance is based, are set forth in Part 2, Subpart J, of this chapter.

(f) through (i) [Reserved]

#### § 74.751 Modification of transmission systems.

(a) No change, either mechanical or electrical, may be made in apparatus which has been type accepted by the Commission without prior authority of the Commission. If such prior authority has been given to the manufacturer of type accepted equipment, the manufacturer may issue instructions for such changes citing its authority. In such cases, individual licensees are not required to secure prior Commission approval but shall notify the Commission when such changes are completed.

(b) Formal application (FCC Form 346) is required for any of the following changes:

(1) Replacement of the transmitter as a whole, except replacement with a transmitter of identical power rating which has been type accepted by the FCC for use by TV translator stations, or any change which could result in the electrical characteristics or performance of the station. Upon the installation or modification of transmitting equipment for which prior FCC authority is not required under the provisions of this paragraph, the licensee shall place in the station records a certification that the new installation complies in all respects with the technical requirements of this Part and the terms of the station authorization.

(2) A change in the transmitting antenna system, including the direction of radiation, directive antenna pattern, or transmission line.

(3) Any change in the overall height of the antenna structure, except where notice to the Federal Aviation Administration is specifically not required under § 17.14(b) of this Chapter.

(4) Any horizontal change of the location of the antenna structure which would (i) be in excess of 500 feet, or (ii) require notice to the Federal Aviation Administration pursuant to § 17.7 of this Chapter.

(5) A change in frequency assignment.

(6) A change in the primary TV station being retransmitted.

(7) A change of authorized operating power.

(c) Any change in the location of the transmission system, except a move within the same building or upon the same antenna supporting structure must be reported to the FCC in Washington, D.C., and the Engi-

neer in Charge of the radio district in which the transmitter is located within 30 days after the move.

【§ 74.751 headnote, (b) (1) and (c) revised eff. 4-30-80; III(80)-1】

#### § 74.752 Installation and maintenance.

(a) The installation of a television broadcast translator station employing type accepted apparatus may be made by a person with sufficient technical knowledge and skill to correctly follow the manufacturer's instructions.

(b) For stations employing modulating equipment, a first-class radiotelephone operator shall examine the transmitting system as installed and shall certify in the application for license that the equipment meets the transmitter requirements of § 74.750(d)(1), and the frequency tolerance requirements of § 74.761, and that the waveform of the transmitted signal conforms to the standards of a television broadcast signal. A report of the methods, measurements and results obtained shall be kept with the station records. Until such time as another form is specified by the Commission, the required report shall include performance data of the visual and aural transmitters comparable to that requested in the license application for television broadcast stations: *Provided, however,* That stations employing modulating equipment solely for the limited local origination of signals permitted by § 74.731(f) need not comply with the requirements of this paragraph.

(c) Any tests or adjustments which require the radiation of signals for their completion and which could result in improper operation of the apparatus, shall be made by or under the immediate supervision of a licensed first- or second-class radiotelephone operator. Repairs which require the replacement of attached components, adjustment of circuits, or technical measurements shall be made only by a person with the knowledge and skill to perform such tasks.

(d) Simple maintenance such as the replacement of tubes, fuses, or other plug-in components and adjustments which require no particular technical skill may be made by an unskilled person.

(e) No minimum maintenance schedule is specified for television translator stations. However, the translator equipment shall be tested and adjusted by a first- or second-class radiotelephone operator as often as necessary to provide a dependable and adequate service to the community served.

(f) The transmitting antenna system may be designed to produce either horizontal, vertical, or circular polarization.

#### TECHNICAL OPERATION AND OPERATORS

##### § 74.761 Frequency tolerance.

The licensee of a television broadcast translator station shall maintain the output frequencies as set

forth below. Translator stations utilizing direct frequency conversion of a received signal will operate with plus or minus the 10 kHz offset frequency, if any, of the primary station.

(a) The visual carrier shall be maintained to within 0.02 percent of the assigned visual carrier frequency for transmitters rated at not more than 100 watts peak visual power.

(b) The visual carrier shall be maintained to within 0.002 percent of the assigned visual carrier frequency for transmitters rated at more than 100 watts peak visual power.

(c) The aural carrier of stations employing modulating equipment shall be maintained at 4.5 MHz  $\pm$  1 kHz above the visual carrier frequency.

##### § 74.762 Frequency monitors and measurements.

(a) The licensee of a television broadcast translator station is not required to provide means for measuring the operating frequencies of the transmitter. However, only equipment having the required stability will be approved for use at a television broadcast translator station.

(b) In the event that a television broadcast translator station is found to be operating beyond the frequency tolerance prescribed in § 74.761, the licensee shall promptly suspend operation of the translator and shall not resume operation until the translator has been restored to its assigned frequencies. Adjustment of the frequency determining circuits of a television broadcast translator station shall be made only by a qualified person in accordance with § 74.750(g).

##### § 74.763 Time of operation.

(a) A television broadcast translator station is not required to adhere to any regular schedule of operation. However, the licensee of a television translator station is expected to provide a dependable service to the extent that such is within its control and to avoid unwarranted interruptions to the service provided.

(b) If causes beyond the control of the licensee require that a television broadcast translator station remain inoperative for a period in excess of 10 days, the Engineer in Charge of the radio district in which the station is located shall be notified promptly in writing, describing the cause of failure and the steps taken to place the station in operation again, and shall be notified promptly when the operation is resumed.

(c) Failure of a television translator station to operate for a period of 30 days or more, except for causes beyond the control of the licensee, shall be deemed evidence of discontinuance of operation and the license of the station may be cancelled at the discretion of the Commission.

(d) A television broadcast translator station shall not be permitted to radiate during extended periods when signals of the primary station are not being retransmitted.

**§ 74.764 Station inspection.**

The licensee of a television broadcast translator station shall make the station and the records required to be kept by the rules in this subpart available for inspection by representatives of the Commission.

**§ 74.765 Posting of station license.**

(a) The station license and any other instrument of authorization or individual order concerning the construction of the station or the manner of operation shall be kept in the station record file maintained by the licensee so as to be available for inspection upon request to any authorized representative of the Commission.

(b) The call sign of the translator together with the name, address, and telephone number of the licensee or local representative of the licensee if the licensee does not reside in the community served by the translator, and the name and address of a person and place where station records are maintained, shall be displayed at the translator site on the structure supporting the transmitting antenna, so as to be visible to a person standing on the ground at the transmitter site. The display shall be prepared so as to withstand normal weathering for a reasonable period of time and shall be maintained in a legible condition by the licensee.

**§ 74.766 Operator requirements.**

(a) A television broadcast translator station may be operated only by a person designated by and under the control of the licensee and need not be a licensed operator under Part 13 (Commercial Radio Operators) of the Commission's rule and regulations.

(b) The operator of a television broadcast translator station shall be in actual charge of the station's operation and, unless the requirements of § 74.734 relating to unattended operation are met, shall be on duty at the place where the transmitting apparatus of the television translator station is located.

(c) The operator of a television broadcast translator station may, at the discretion of the licensee, be employed for other duties. However, such duties shall not interfere with the operation of the television translator station.

[§ 74.766 (b) added new and old par (b) redesignated par (c) eff. 2-17-78; III (76)-6]

**§ 74.767 Antenna structure, marking and lighting.**

The painting and lighting of antenna structures employed by stations licensed under this subpart, where required, will be specified in the authorization issued by the Commission. Section 74.22 and Part 17 of this Chapter set forth the conditions under which painting and lighting will be required and the responsibility of the licensee with regard thereto.

**§ 74.768 Additional orders.**

In cases where the rules contained in this part do not cover all phases of operation or experimentation with respect to external effects, the Commission may

make supplemental or additional orders in each case as may be deemed necessary.

**§ 74.769 Copies of rules.**

The licensee or permittee of a station authorized under this Subpart shall have a current copy of Volume I and Volume III of the Commission's Rules and shall make them available for use by the operator in charge. Each such licensee or permittee shall be familiar with those rules relating to stations authorized under this Subpart. Copies of the Commission's rules may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

**OTHER OPERATING REQUIREMENTS****§ 74.781 Station records.**

(a) The licensee of a television broadcast translator station shall maintain adequate station records, including the current instrument of authorization, official correspondence with the Commission, maintenance records, contracts, permission for rebroadcasts, and other pertinent documents.

(b) Entries by § 17.49 (a), (b), and (c) of this Chapter concerning the time the tower lights are turned on and off each day if manually controlled, the time the daily check of proper operation of the tower lights was made if automatic alarm system is not provided, and any observed failure of the lighting system. See § 17.47 (a) for daily tower lighting observation or automatic alarm system requirements.

(c) Entries required by § 17.49 (d) of this Chapter concerning quarterly inspections of the condition of the tower lights and associated control equipment; when adjustments, replacement or repairs are made to insure compliance with the lighting requirements; and when towers are cleaned or repainted as required by § 17.50 of this Chapter.

(d) The station records shall be maintained for inspection at a residence, office, public building, place of business, or other suitable place, in one of the communities of license of the translator, except that the station records of a translator licensed to the licensee of the primary station may be kept at the same place where the primary station records are kept. The name of the person keeping station records, together with the address of the place where the records are kept, shall be posted in accordance with § 74.765 (b) of the rules. The station records shall be made available upon request to any authorized representative of the Commission.

(e) Station logs and records shall be retained for a period of two years.

**§ 74.783 Station identification.**

(a) Each television broadcast translator of over 1 watt peak visual power must transmit its station identification.

(1) by transmitting the call sign in International Morse Code at least once each hour. This transmission

may be accomplished by means of an automatic device as required by § 74.750 (c) (7). Call sign transmission shall be made at a code speed not in excess of 20 words per minute; or

(2) by arranging for the primary station, whose signal is being rebroadcast, to identify the translator station by transmitting an easily readable visual presentation or a clearly understandable aural presentation of the translator station's call letters and location. Two such identifications shall be made between 7 a.m. and 9 a.m. and 3 p.m. and 5 p.m. each broadcast day at approximately one hour intervals during each time period. Television stations which do not begin their broadcast day before 9 a.m. shall make these identifications in the hours closest to these time periods at the specified intervals.

(b) Licensees of television translators whose station identification is made by the television station whose signals are being rebroadcast by the translator, must secure agreement with this television station licensee to keep in its file, and available to FCC personnel, the translator's call letters and location, giving the name, address and telephone number of the licensee or his service representative to be contacted in the event of malfunction of the translator. It shall be the responsibility of the translator licensee to furnish current information to the television station licensee for this purpose.

(c) Call signs for television broadcast translator stations will be made up of the initial letter K or W followed by the channel number assigned to the translator and two letters. The use of the initial letter will

generally follow the pattern used in the broadcast service, i.e., stations west of the Mississippi River will be assigned an initial letter K and those east of the Mississippi River the letter W. The two letter combinations following the channel number will be assigned in order and requests for the assignment of the particular combinations of letters will not be considered. The channel number designator for Channels 2 through 9 will be incorporated in the call sign as a two-digit number, i.e., 02, 03, 04, 05, 06, 07, 08, or 09, to avoid similarities with call signs assigned to Amateur Radio Stations.

#### § 74.784 Rebroadcasts.

(a) The term "rebroadcast" means the reception by radio of the programs or other signals of a radio or television station and the simultaneous or subsequent retransmission of such programs or signals for direct reception by the general public.

(b) The licensee of a television broadcast translator station shall not rebroadcast the programs of any television broadcast station or other television broadcast translator station without obtaining prior consent of the station whose signals or programs are proposed to be retransmitted. The Commission shall be notified of the call letters of each station rebroadcast and the licensee of the television broadcast translator station shall certify that written consent has been received from the licensee of the station whose programs are retransmitted.

(c) A television translator station may only rebroadcast programs and signals which are simultaneously transmitted by a television broadcast station.

**SUBPART H—LOW POWER  
AUXILIARY STATIONS**

**DEFINITIONS AND ALLOCATION OF FREQUENCIES**

**§ 74.801. Definitions.**

*Cable television system operator.* A cable television operator is defined in § 76.5(11) of the rules as that local business entity be it natural person partnership corporation or association which offers for sale services of a cable television system in the system community.

*Low power auxiliary station.* An auxiliary station authorized and operated pursuant to the provisions set forth in this Subpart. Devices authorized as low power auxiliary stations are intended to transmit over distances of approximately 100 meters for uses such as wireless microphones, cue and control communications, and synchronization of TV camera signals.

*Motion picture producer.* Motion picture producer refers to a person or organization engaged in the production or filming of motion pictures.

*Network entity.* An organization which produces programs available for simultaneously transmissions by 10 or more affiliated stations and having distribution facilities or circuits available to such affiliated stations in service at least 12 hours each day.

*Television program producer.* Television program producer refers to a person or organization engaged in the production of television programs.

**§ 74.802. Frequency assignment.**

(a) The following frequency bands may be assigned for use by low power auxiliary stations:

- 26.10—26.48 MHz
- 161.625—161.775 MHz (except in Puerto Rico or the Virgin Islands)
- 174—216 MHz
- 450—451 MHz
- 455—456 MHz
- 947—952 MHz

Except for the 174–216 MHz band, transmitting units may be operated on any frequency within the band of frequencies for which the station is licensed.

(b) In the 174–216 MHz band, operations are limited to locations removed from existing co-channel stations<sup>1</sup> by the following distances unless otherwise authorized by the Commission:

- Zone I, 97 Km (60 miles)
- Zone II and III, 120 Km (75 miles)

Specific frequency operation is required in this band. However, the licensee will select the exact frequency on which operation is desired. Specific frequencies available for use by low power auxiliary stations in the 174–216 MHz band are as follows:

- (1) Within television Channel 7 (174–180 MHz):  
174.6, 174.8, 175.0, 175.2, 175.4, 175.6, 175.8, 176.0, 176.2, 176.4, 176.6, 177.0, 177.2, 177.4, 177.6, 177.8, 178.0, 178.2, 178.4, 178.6, 178.8, 179.0, 179.2, 179.4.
- (2) Within television Channel 8 (180–186 MHz):  
180.6, 180.8, 181.0, 181.2, 181.4, 181.6, 181.8, 182.0, 182.2, 182.4, 182.6, 183.0, 183.2, 183.4, 183.6, 183.8, 184.0, 184.2, 184.4, 184.6, 184.8, 185.0, 185.2, 185.4.
- (3) Within television Channel 9 (186–192 MHz):  
186.6, 186.8, 187.0, 187.2, 187.4, 187.6, 187.8, 188.0, 188.2, 188.4, 188.6, 189.0, 189.2, 189.4, 189.6, 189.8, 190.0, 190.2, 190.4, 190.6, 190.8, 191.0, 191.2, 191.4.
- (4) Within television Channel 10 (192–198 MHz):  
192.6, 192.8, 193.0, 193.2, 193.4, 193.6, 193.8, 194.0, 194.2, 194.4, 194.6, 195.0, 195.2, 195.4, 195.6, 195.8, 196.0, 196.2, 196.4, 196.6, 196.8, 197.0, 197.2, 197.4.
- (5) Within television Channel 11 (198–204 MHz):  
198.6, 198.8, 199.0, 199.2, 199.4, 199.6, 199.8, 200.0, 200.2, 200.4, 200.6, 201.0, 201.2, 201.4, 201.6, 201.8, 202.0, 202.2, 202.4, 202.6, 202.8, 203.0, 203.2, 203.4.
- (6) Within television Channel 12 (204–210 MHz):  
204.6, 204.8, 205.0, 205.2, 205.4, 205.6, 205.8, 206.0, 206.2, 206.4, 206.6, 207.0, 207.2, 207.4, 207.6, 207.8, 208.2, 208.4, 208.6, 208.8, 209.0, 209.2, 209.4.
- (7) Within television Channel 13 (210–216 MHz):  
210.6, 210.8, 211.0, 211.2, 211.4, 211.6, 211.8, 212.0, 212.2, 212.4, 212.6, 213.0, 213.2, 213.4, 213.6, 213.8, 214.0, 214.2, 214.4, 214.6, 214.8, 215.0, 215.2, 215.4.

(c) A licensee is not limited with respect to the number of low power auxiliary stations which may be licensed.

(d) Low power auxiliary licensees will not be granted exclusive frequency assignments.

**§ 74.803 Frequency selection to avoid interference.**

(a) Where two or more low power auxiliary licensees need to operate in the same area, the licensees shall endeavor to select frequencies or schedule operation in such manner as to avoid mutual interference. If a mutually satisfactory arrangement cannot be reached, the Commission shall be notified and it will specify the frequency or frequencies to be employed by each licensee.

(b) The selection of frequencies in the 174–216 MHz band for use in any area shall be guided by the need to avoid interference to television reception. In this band low power auxiliary station usage is secondary to television broadcasting and shall not cause harmful interference to television reception. If interference occurs, low power auxiliary station operation shall cease immediately and shall not resume until the interference problem has been resolved.

<sup>1</sup> Authorizations issued by the Commission will be subject to the provisions of any agreement entered into by the United States with Canada and Mexico. Until further notice, the following minimum separations from allocated channels in Canada and Mexico will be required:

- Zone I, 274 Km (170 miles)
- Zone II, 306 Km (190 miles)
- Zone III\*, 354 Km (220 miles)

322 Km (200 miles) will apply if the location is 322 Km (200 miles) or more from the Mexican border.

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§ 74.831 Scope of service and permissible transmissions.

The license for a low power auxiliary station authorizes the transmission of cues and orders to production personnel and participants in broadcast programs and motion pictures and in the preparation therefor, the transmission of program material by means of a wireless microphone worn by a performer and other participants in a program or motion picture during rehearsal and during the actual broadcast, filming, or recording, or the transmission of comments, interviews, and reports from the scene of a remote broadcast. Low power auxiliary stations operating in the 947-952 MHz band may, in addition, transmit synchronizing signals and various control signals to portable or hand-carried TV cameras which employ low power radio signals in lieu of cable to deliver picture signals to the control point at the scene of a remote broadcast.

§ 74.832 Licensing requirements and procedures.

(a) A license authorizing operation of one or more low power auxiliary stations will be issued only to the following:

(1) A license of an AM commercial FM, non-commercial educational FM, commercial television, educational television or international broadcasting station. Low power auxiliary broadcast stations will be licensed for use with a specific broadcasting station or combination of broadcasting stations licensed to the same licensee and to the same community.

(2) A network entity as defined in § 74.801.

(3) A cable television system operator who operates a cable system that produces program material for origination or access cablecasting, as defined in §§ 76.5 (v) and (x).

(4) Motion pictures producers as defined in § 74.801.

(5) Television program producers as defined in § 74.801.

(b) An application for a new or renewal of low power auxiliary license shall specify the frequency band or bands desired. Only those frequency bands necessary for satisfactory operation shall be requested.

(c) Licensees of AM, commercial FM, non-commercial educational FM, educational and commercial television or international broadcast stations, and network entities may be authorized to operate low power auxiliary stations in the frequency bands set forth in § 74.802(a).

(d) Cable television operators, and motion picture and television program producers may be authorized to operate low power auxiliary stations only in the 174-216 MHz band.

(e) An application for new low power auxiliary stations or for a change in an existing authorization shall specify the broadcasting station, combination of such station, or the network with which the low power broadcast auxiliary facilities are to be principally used as set forth in paragraph (h) of this Section; or it shall specify the motion picture or television production company or the cable television operator with which the low power broadcast auxiliary facilities are to be solely used. A single application, filed in duplicate on FCC Form 313 or FCC Form 425, as appropriate, may be used in applying for the authority to operate one or more low power auxiliary units. The application shall specify the number of units to be operated and the frequency bands which will be used. Applications for the use of the 174-216 MHz band shall also specify the nearest television stations operating on the requested channel since operations in this band are limited to areas removed from existing co-channel stations. Motion picture producers, television program producers, and cable television operators are required to attach a single sheet to their application form explaining in detail the manner in which the eligibility requirements set forth in paragraph (a) are met.

(f) Applications for the use of the 174-216 MHz band must specify an area of operation within which the low power auxiliary station will be used. This area of operation may, for example, be specified as the metropolitan area which the broadcast licensee serves, or a restricted area within which motion picture and television producers are operating. Since low power auxiliary station use of this band will only be permitted in areas removed from existing co-channel television broadcast stations, it is the licensee's responsibility to insure operation of these stations does not occur at distances less than those specified in § 74.802 (b) with respect to existing co-channel television stations serving part of the specified area of operation.

(g) Low power auxiliary licenses will specify the minimum and maximum number of units that may be operated as follows: from 1 to 5 stations; from 4 to 12 stations; from 10 to 24 stations; from 20 to 50 stations; 45 or more stations. Licensees shall have installed and maintain in operating conditions the minimum number of units authorized within 120 days following the grant date of the license.

(h) For broadcast licensees, low power auxiliary stations will be licensed for use with a specific broadcasting station or combination of broadcasting stations licensed to the same licensee and to the same community. Licensing of low power auxiliary stations for use with a specific broadcasting station or combination of such stations does not preclude their use with other broadcasting stations of the same or a dif-

ferent licensee at any location: *Provided, however*, That low power auxiliary stations operating in the 174–216 MHz band may not operate outside the area of operation specified in the authorization without prior Commission approval. Such additional use for low power auxiliary stations operating in other bands is permitted without further authority of the Commission: *Provided, however*, Operation of low power auxiliary stations shall, at all times, be in accordance with the requirements of Section 74.882 of this Subpart: *And provided further*, A low power auxiliary station that is being used with a broadcasting station or network other than one with which it is licensed, shall, in addition to meeting the requirements of Section 74.861 of this Subpart, not cause harmful interference to another low power auxiliary station which is being used with the broadcast station(s) or network with which it is licensed.

(i) In case of permanent discontinuance of operation of a station licensed under this Subpart, the licensee shall forward the station license to the Commission in Washington for cancellation. For purposes of this section, a station which is not operated for a period of one year is considered to have been permanently discontinued.

#### § 74.833 Temporary authorizations.

(a) Special temporary authority may be granted for: operation of a low power auxiliary station licensed to another licensee; operation, as a low power auxiliary station, of equipment licensed to another class of station or service, or, operation of equipment of suitable design not heretofore licensed. Such authority will normally be granted only for special operations of a temporary nature.

(b) A request for special temporary authority for the operation of a low power auxiliary station may be made by informal application, which shall be filed with the Commission in Washington at least 10 days prior to the date of the proposed operation: *Provided*, That an application filed within less than 10 days of the proposed operation may be accepted upon a satisfactory showing of the reasons for the delay in submitting the request.

(c) An informal request for special temporary authority shall be addressed to the Commission in Washington, D.C., or the Commission's Chicago Regional office, as appropriate (see § 74.804), and shall set forth full particulars including: applicant's name, statement of eligibility, call letters of associated broadcasting station or stations, if any, name and address of individual designated to receive return telegram, type and manufacturer of equipment, power output, emission, frequency or frequencies proposed to be used, commencement and termination date and location of proposed operation, and purpose for which requests is made including any particular justification.

(d) A request for special temporary authority shall specify a frequency band consistent with the provisions of § 74.802: *Provided*, That, in the case of events

of wide-spread interest and importance which cannot be transmitted successfully on these frequencies, frequencies assigned to other services may be requested upon a showing that operation thereon will not cause interference to established stations: *And provided further*, In no case will operation of a low power auxiliary broadcast station be authorized on frequencies employed for the safety of life and property.

(e) An applicant requesting special temporary authority to operate, as a low power auxiliary station, equipment authorized for use by another class of station, shall, if the equipment to be used is not licensed to the applicant, submit a statement to show that temporary control of the transmissions therefrom has been secured for the duration of the special operation proposed.

(f) Special temporary authority to permit operation of low power auxiliary stations pending Commission action on an application for regular authority will not normally be granted.

#### EQUIPMENT

#### § 74.851 Type acceptance of equipment.

(a) Applications for new low power auxiliary stations will not be accepted unless the transmitting equipment specified therein has been type accepted for use pursuant to provisions of this Subpart.

(b) Any manufacture of a transmitter to be used in this service may apply for type acceptance for such transmitter following the type acceptance procedure set forth in Part 2 of the Commission's Rules and Regulations. Attention is also directed to Part 1 of the Commission's Rules and Regulations which specifies the fees required when filing an application for type acceptance.

(c) An applicant for a low power auxiliary station may also apply for type acceptance for an individual transmitter by following the type acceptance procedure set forth in Part 2 of the Commission's Rules and Regulations. The application for type acceptance must be accompanied by the proper fees as prescribed in Part 1 of the Commission's Rules and Regulations. Individual transmitters which are typed accepted will not normally be included in the Commission's "Radio Equipment List."

(d) Low power auxiliary station equipment authorized to be used pursuant to an application accepted for filing prior to December 1, 1977, may continue to be used by the licensee or its successors or assignees: *Provided, however*, If operation of such equipment causes harmful interference due to its failure to comply with the technical standards set forth in this Subpart, the Commission may, at its discretion, require the licensee to take such corrective action as is necessary to eliminate the interference.

(e) Each instrument of authority which permits operation of a low power auxiliary station using equipment which has not been type accepted will specify the particular transmitting equipment which the licensee is authorized to use.

(f) All transmitters marketed for use under this Subpart shall be type accepted by the Federal Communications Commission for this purpose. (Refer to Subpart 1 of Part 2 of the Commission's Rules and Regulations.)

#### § 74.852 Equipment changes.

(a) The licensee of a low power auxiliary station may make any changes in the equipment that are deemed desirable or necessary, including replacement with type accepted equipment, without prior Commission approval: *Provided*, the proposed changes will not depart from any of the terms of the station authorization or the Commission's technical rules governing this service: *And provided further*, that any changes made to type accepted transmitting equipment shall be in compliance with the provisions of Part 2 of the Commission's Rules and Regulations concerning modification of type accepted equipment.

(b) Any equipment changes made pursuant to paragraph (a) of this section shall set forth in the next application for renewal of license.

#### TECHNICAL OPERATION AND OPERATORS

#### § 74.861 Technical requirements.

(a) Transmitter power is the power at the transmitter output terminals and delivered to the antenna, antenna transmission line, or any other impedance-matched, radio frequency load. For the purpose of this Subpart, the transmitter power is the carrier power.

(b) Each authorization for a new low power auxiliary station shall require the use of type accepted equipment. Such equipment shall be operated in accordance with the emission specifications included in the type acceptance grant and as prescribed in paragraphs (c) through (e) of this section.

(c) Low power auxiliary transmitters not required to operate on specific carrier frequencies shall operate sufficiently within the authorized frequency band edges to insure the emission bandwidth falls entirely within the authorized band.

(d) For low power auxiliary stations operating in bands other than the 174–216 MHz band, the following technical requirements are imposed.

(1) The maximum transmitter power which will be authorized is 1 watt. Licensees may accept the manufacturer's power rating; however, it is the licensee's responsibility to observe specified power limits.

(2) If a low power auxiliary station employs amplitude modulation, modulation shall not exceed 100 percent on positive or negative peaks.

(3) The occupied bandwidth shall not be greater than that necessary for satisfactory transmission and, in any event, an emission appearing on any discrete frequency outside the authorized band shall be attenuated, at least,  $43 + 10 \log_{10}$  (mean output power, in watts) dB below the mean output power of the transmitting unit.

(e) For low power auxiliary stations operating in

the 174–216 MHz band, the following technical requirements are imposed:

(1) The power of the unmodulated carrier at the transmitter output terminals may not exceed 50 mW.

(2) Transmitters shall be crystal controlled, employ frequency modulation with a maximum deviation of  $\pm 15$  kHz and a maximum modulating frequency of 15 kHz, and shall have a frequency tolerance of 0.005 percent.

(3) The authorized bandwidth is 100 kHz.

(4) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

(i) On any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB;

(ii) On any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB;

(iii) On any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth: at least  $43 + 10 \log_{10}$  (mean output power in watts) dB.

(f) Unusual transmitting antennas or antenna elevations shall not be used to deliberately extend the range of low power auxiliary stations beyond the limited areas defined in Section 74.831 of this Subpart.

(g) Low power auxiliary stations shall be operated so that no harmful interference is caused to any other class of station operating in accordance with Commission Rules and Regulations and with the Table of Frequency Allocations in Part 2 thereof.

(h) In the event a station's emission outside its authorized frequency band causes harmful interference, the Commission may, at its discretion, require the licensee to take such further steps as may be necessary to eliminate the interference.

#### § 74.866 Station inspections.

The licensee of each low power auxiliary station shall make such station available for inspection by representatives of the Commission at any reasonable hour.

#### § 74.867 Posting of licenses.

The license for one or more low power auxiliary stations shall be posted with the license for any broadcasting station with which the auxiliary is licensed. The licenses held by an eligible network entity, cable television operator, motion picture producer, or television program producer shall be kept in the licensee's files at the address shown on the authorization.

#### § 74.868 Operator requirements.

(a) A low power auxiliary station may be operated only by a person designated by and under the control of the licensee and need not be a licensed operator under Part 13 (Commercial Radio Operators) of the

**Commission's Rules and Regulations.**

(b) The provisions of this section authorizing unlicensed persons to operate low power auxiliary stations shall not be construed to change or diminish in any respect the responsibility of the licensee to have and to maintain control over the stations licensed to it or for the proper functioning and operation of those stations in accordance with the terms of the stations license and pertinent Commission rules and regulations.

(c) All transmitter repairs or adjustments which may affect the proper operation of a low power auxiliary station shall be made by or under the immediate supervision of a person holding a First- or Second-Class Radiotelephone Operator License.

**OTHER OPERATING REQUIREMENTS****§ 74.881 Logs and records.**

Each licensee of low power auxiliary stations having transmitter output power exceeding 50 mW shall

maintain an accurate record listing the current location of all such low power auxiliary stations. These records may be kept at the main studio or transmitter of a broadcasting station with which the auxiliary station is licensed, or in the files of the principal place of business for eligible network entities, cable television operators, motion picture producers, and television program producers. These records shall be retained for a period of one year.

**§ 74.882 Station identification.**

Call signs will not be assigned to low power auxiliary stations. In lieu thereof, for transmitters used for voice transmissions and having a transmitter output power exceeding 50 mW, an announcement shall be made at the beginning and end of each period of operation at a single location, over the transmitting unit being operated, identifying the transmitting unit designator, its location, and the call sign of the broadcasting station or name of the licensee with which it is being used. A period of operation may consist of a continuous transmission or intermittent transmissions pertaining to a single event.



## SUBPART I—INSTRUCTIONAL TELEVISION FIXED SERVICE

### DEFINITIONS AND ALLOCATION OF FREQUENCIES

#### § 74.901 Definitions.

*Attended operation.* Operation of a station by a qualified operator on duty at the place where the transmitting apparatus is located with the transmitter in plain view of the operator.

*Instructional television fixed station.* A fixed station operated by an educational organization and used primarily for the transmission of visual and aural instructional, cultural, and other types of educational material to one or more fixed receiving locations.

*ITFS response station.* A fixed station operated at an authorized location to provide communication by voice and/or data signals to an associated instructional television fixed station.

*Remote control.* Operation of a station by a qualified operator on duty at a control position from which the transmitter is not visible but which control position is equipped with suitable control and telemetering circuits so that the essential functions that could be performed at the transmitter can also be performed from the control point.

*Unattended operation.* Operation of a station by automatic means whereby the transmitter is turned on and off and performs its functions without attention by a qualified operator.

#### § 74.902 Frequency assignments.

(a) The following frequencies may be assigned to instructional television fixed stations:

Group A		Group B		Group C		Group D	
Chan- nel No.	Band limits MHz	Chan- nel No.	Band limits MHz	Chan- nel No.	Band limits MHz	Chan- nel No.	Band limits MHz
A-1...	2500-2506	B-1...	2506-2512	C-1...	2548-2554	D-1...	2554-2560
A-2...	2512-2518	B-2...	2518-2524	C-2...	2560-2566	D-2...	2566-2572
A-3...	2524-2530	B-3...	2530-2536	C-3...	2572-2578	D-3...	2578-2584
A-4...	2536-2542	B-4...	2542-2548	C-4...	2584-2590	D-4...	2590-2596

Group E		Group F		Group G	
Chan- nel No.	Band limits MHz	Chan- nel No.	Band limits MHz	Chan- nel No.	Band limits MHz
E-1...	2596-2602	F-1...	2602-2608	G-1...	2644-2650
E-2...	2608-2614	F-2...	2614-2620	G-2...	2656-2662
E-3...	2620-2626	F-3...	2626-2632	G-3...	2668-2674
E-4...	2632-2638	F-4...	2638-2644	G-4...	2680-2686

(b) Instructional Television Fixed Stations authorized to operate on Channels 2650-2656, 2662-2668, and 2674-2680 MHz as of July 16, 1971, may continue to operate on a coequal basis with other stations operating in accordance with the Table of Frequency Allocations. Requests for subsequent renewals or

modification of existing licenses will be considered; however, expansion of systems comprised of such stations will not be permitted except on frequencies allocated for the service.

(c) A licensee is limited to the assignment of no more than four channels for use in a single area of operation, all of which must be selected from the same Group listed in paragraph (a) of this section. An area of operation is defined as the area in which the use of channels by one licensee precludes their use by other licensees. Applicants shall not apply for more channels than they intend to construct within a reasonable time, simply for the purpose of reserving additional channels. Applicants applying for more than one channel shall submit to the Commission a plan indicating when they intend to begin and complete construction of each channel applied for, and the Commission will determine whether or not a grant of the channels requested would serve the public interest. Applicants initially proposing the operation of less than four transmitters may request that the remaining channels in the same Group be reserved for future expansion of the system. The Commission will undertake to avoid assigning the remaining channels in the Group to other applicants as long as such action is feasible in the judgement of the Commission. The provision for a maximum of four channels to a single licensee shall not be construed as a guarantee that four channels will be assigned.

(d) The same channel may be assigned to more than one station or more than one licensee in the same area if the geometric arrangement of the transmitting and receiving points or the times of operation are such that interference is not likely to occur.

#### § 74.903 Interference.

(a) Since interference in this service will occur only when an unfavorable desired-to-undesired signal ratio exists at the antenna input terminals of the affected receiver, the directive properties of receiving antennas can be used to minimize the hazard of such interference. Interference may also be controlled through the use of directive transmitting antennas, geometric arrangement of transmitters and receivers, and the use of the minimum power required to provide the needed service.

(b) An application for a new instructional television fixed station is expected to take full advantage of such techniques to prevent interference to the reception of any existing operational fixed, international control station or instructional television fixed station at authorized receiving locations. In cases where it can be demonstrated that potential interference could be effectively controlled with practical refinements at such existing receiving locations, the user of the receiving installation is expected to make the needed refinements if interference-free reception is desired.

(c) Existing licensees and prospective applicants are expected to cooperate fully in attempting to resolve problems of potential interference before bringing the matter to the attention of the Commission.

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§ 74.931 Purpose and permissible service.

(a) Instructional television fixed stations are intended primarily to provide a means for the transmission of instructional and cultural material in visual form with an associated aural channel to specified receiving locations for the primary purpose of providing a formal education and cultural development to students enrolled in accredited public and private schools, colleges, and universities.

(b) Such stations may also be used for the additional purpose of transmitting visual and aural material to selected receiving locations for in-service training and instruction in special skills and safety programs, extension of professional training, informing persons and groups engaged in professional and technical activities of current developments in their particular fields, and other similar endeavors.

(c) During periods when the circuits provided by these stations are not being used for the transmission of instructional and cultural material, they may be used for the transmission of material directly related to the administrative activities of the licensee such as the holding of conferences with personnel, distribution or reports and assignments, exchange of data and statistics, and other similar uses. Stations will not be licensed in this service solely for the transmission of administrative traffic.

(d) Stations may be licensed in this service for operation as relay stations to interconnect instructional television fixed station systems in adjacent areas, to deliver instructional and cultural material to, and obtain such material from, commercial and noncommercial educational television broadcast stations for use on the instructional television fixed system, and to deliver instructional and cultural material to, and obtain such material from, nearby terminals or connection points of closed circuit educational television systems employing wired distribution systems or radio facilities authorized under other parts of this chapter.

(e) Material transmitted by these stations may be intended for simultaneous reception and display or may be recorded for use at a later time.

§ 74.932 Eligibility and licensing requirements.

(a) A license for an instructional television fixed station will be issued only to an institutional or governmental organization engaged in the formal education of enrolled students or to a nonprofit organization formed for the purpose of providing instructional television material to such institutional or governmental organizations, and which is otherwise qualified under the statutory provisions of the Communications Act of 1934, as amended. A nonprofit organization which would be eligible for a license for a noncommercial educational television broadcast station is considered

to be eligible for a license for an instructional television fixed station.

(1) In determining the eligibility of publicly supported educational organizations, the accreditation of the appropriate state department of education will be taken into consideration.

(2) In determining the eligibility of privately controlled educational organizations, the accreditation of the appropriate state department of education or the recognized regional and national accrediting organizations will be taken into consideration.

(b) No numerical limit is placed on the number of stations which may be licensed to a single licensee. However, individual licensees will be governed by the limitation of § 74.902 as to the number of channels which may be used. A single license may be issued for more than one transmitter if they are to be located at a common site and operated by the same licensee. Applicants are expected to accomplish the proposed operation by the use of the smallest number of channels required to provide the needed service.

(c) An application for a new instructional television fixed station or for changes in the facilities of an existing station shall specify the location of the transmitter, all proposed receiving installations, response transmitters, and any relay transmitters which will be under the control of or will be equipped for reception by the applicant. If reception is also intended at unspecified locations, i.e., if power is deliberately radiated to locations or areas so that voluntary reception will be possible, the applications shall include a complete statement as to the purpose of such additional reception.

§ 74.933 Remote control operation.

(a) An instructional television fixed station may be operated by remote control if the following conditions are met:

(1) The transmitter and associated control system shall be installed and protected in a manner designed to prevent tampering or operation by unauthorized persons.

(2) An operator meeting the requirements of § 74.966 shall be on duty at the remote control position and in actual charge thereof at all times when the station is in operation.

(3) Facilities shall be provided at the control position which will permit the operator to turn the transmitter on and off at will. The control position shall also be equipped with devices suitable for observing the overall characteristics of the transmissions and a carrier-operated device which will give a continuous visual indication whenever the transmitting antenna is radiating a signal. The transmitting apparatus shall be inspected as often as may be necessary to insure proper operation and in any event at least once a day.

(4) The control circuits shall be so designed and in-

stalled that short circuits, open circuits, other line faults, or any other cause which would result in loss of control of the transmitter, will automatically cause the transmitter to cease radiating.

(b) An application for authority to construct a new station or to make changes in the facilities of an existing station and which proposes operation by remote control shall include an adequate showing of the manner of compliance with the requirements of this section.

#### § 74.934 Unattended operation.

(a) Unattended operation of an instructional television fixed station will be permitted only when it is used for relaying the signals of another station which is employing the transmission standards specified for stations operating in this service and then only if the following requirements are met:

(1) The transmitter shall be equipped with automatic circuits which will permit it to radiate only when a signal on the channel which it is intended to retransmit is present at the input terminals of the apparatus. The automatic circuit may be provided with a reasonable time-delay factor to prevent the transmitter from being turned off during momentary failures of the incoming signal.

(2) The transmitter shall accomplish the relaying of the incoming signal by direct heterodyne frequency conversion to a different channel, or linear amplification of the incoming signal. The use of a common oscillator to convert the incoming signal to a low frequency for amplification and to reconvert it to its original channel will be considered to be the same as linear amplification. In cases where frequency conversion to a different channel is employed, the electrical characteristics of the incoming signal when retransmitted shall not be significantly altered except as to frequency and amplitude. In cases where linear amplification is employed, the electrical characteristics of the incoming signal when retransmitted shall not be significantly altered except as to amplitude. Care shall be taken in the design and installation of an unattended relay station to prevent instability which could result in spurious or other unwanted radiation.

(3) If the transmitting apparatus is located at a site which is not readily accessible at all hours and in all seasons, means shall be provided for turning the transmitter on and off at will from a location which can be reached promptly at all hours and in all seasons.

(4) The transmitter and any associated control circuits shall be installed and protected in a manner designed to prevent tampering or operation by unauthorized persons.

(5) Where the antenna supporting structure of an unattended station is required to have aeronautical hazard markings pursuant to the provisions of Part 17 of this chapter, the licensee shall provide for inspection and logging of observations of such markings as required by §§ 17.47 and 17.49 of this chapter.

(b) An application for authority to construct a new station or to make changes in the facilities of an existing station and which proposes unattended operation shall include an adequate showing as to the manner of compliance with the requirements of this section.

#### § 74.935 Power limitations.

(a) The power of an instructional television fixed station will be limited to that required to perform the proposed service. Applicants are expected to take full advantage of the power-concentrating properties of directive transmitting antennas and the collective properties of directive receiving antennas to provide the needed service.

(b) An application for a new instructional television fixed station or for changes in the facilities of an existing station proposing a peak visual power output from the transmitter in excess of 10 watts shall include a showing as to the distance and direction to each specified receiving point, the elevation above ground and the power gain of each receiving antenna at such receiving points, the vertical and horizontal directive patterns of the proposed transmitting antenna system in terms of power gain, the elevation of the transmitting antenna above ground and the nature of significant terrain features over the transmission path or paths.

(c) The operating power (peak visual) of an instructional television fixed station shall not be permitted to exceed the authorized power by more than 10 percent at any time.

(d) The transmitter power output of the aural signal shall not be more than 70 percent nor less than 10 percent of the peak power output of the visual signal.

#### § 74.936 Emissions and bandwidth.

(a) An instructional television fixed station shall normally employ amplitude modulation (A5) for the transmission of the visual signal and frequency modulation (F3) for the transmission of the aural signal.

(b) The average power of radio frequency harmonics of the visual and aural carriers, measured at the output terminals of the transmitter, shall be attenuated no less than 60 decibels below the peak visual output power within the assigned channel. All other emissions appearing on frequencies more than 3 MHz above or below the upper and lower edges, respectively, of the assigned channel shall be attenuated no less than:

(1) 30 dB for transmitters rated at less than 10 watts visual peak power output.

(2) 40 dB for transmitters rated at 10 watts or more visual peak power output.

(c) Should interference occur as the result of emissions outside the assigned channel, greater attenuation may be required.

#### § 74.937 Antennas.

(a) In order to minimize the hazard of harmful interference from other stations, directive receiving an-

tennas should be used at all receiving points. The choice of receiving antennas is left to the discretion of the licensee. However, should interference occur and it can be demonstrated that such interference could be eliminated through the use of a more suitable yet practical directive receiving antenna, the licensee of the station causing the interference is absolved of the responsibility of correcting the interference condition.

(b) Directive transmitting antennas shall be used wherever feasible so as to minimize the hazard of harmful interference to other licensees. The radiation pattern shall be designed to minimize radiation in directions where no reception is intended.

(c) In selecting a location for the transmitting antenna, it should be borne in mind that interference to the reception of its transmission is most likely to come from the direction in which receiving antennas must be aimed to receive its transmissions. Whenever possible the location should be chosen so that the receiving antennas in its system are aimed in directions from which interfering signals are least likely to come.

(d) The use of elevated receiving antennas is preferable to the use of elevated transmitting antennas or greater power to provide the desired service.

(e) The use of vertical or horizontal plane polarization or right-hand or left-hand rotating (circular) polarization may be used to minimize the hazard of harmful interference between systems. The Commission reserves the right to specify the polarization to be used.

(f) The power gain compared to an isotropic antenna and the directive properties of the transmitting and receiving antennas proposed to be employed, as well as the geometric distribution of the transmitting and receiving points, shall be supplied with each application for a new educational television fixed station or for changes in the antenna facilities of an existing station.

#### § 74.938 Transmission standards.

(a) Except as otherwise provided in this section, the transmission standards employed by television broadcast stations and set forth in § 73.682 of this Chapter shall apply to instructional television fixed stations.

(b) Instructional television fixed stations are not required to attenuate the lower sideband by any specified amount unless interference to the reception of another station results from emissions in excess of those permitted television broadcast stations, in which case the attenuation specified in § 73.687 (a) (3) of this Chapter shall apply. However, in no case shall the amplitude of any lower sideband component exceed the amplitude of the upper sideband component having the highest amplitude.

(c) The visual transmission amplitude characteristics may vary from those specified in § 73.682 of this Chapter to the extent that such variations result from permissible lower sideband radiation. Care should be exercised in the adjustment of the transmitter to insure correct overall response of the trans-

mitter for transmission of the upper and vestigial lower sideband.

(d) The provisions of § 74.937 in lieu of § 73.682 (a) (14) of this Chapter apply with respect to polarization of the radiated signal.

(e) The provisions of § 74.935 (d) in lieu of § 73.682 (a) (15) of this Chapter apply with respect to the ratio of visual to aural power.

#### § 74.939 Special rules governing ITFS response stations.

(a) An ITFS response station is authorized to provide communication by voice and/or data signals with its associated instructional television fixed station for use in instructional or computer-assisted communications. Other communications concerning the technical operation of the system may be carried on when necessary.

(b) An ITFS response station may be operated only by the licensee of an instructional television fixed station and only at an authorized receiving location of the instructional television fixed station with which it communicates. More than one ITFS response station may be operated at the same or different locations by the same licensee. An application for authority to operate a new or modified response station shall be filed with the Commission in Washington, D.C., on FCC Form 330P. Section VI of that form shall supply the following information for each response station:

(1) The name of the school or other description of the building in which the ITFS response station will be located, the address, and the geographic coordinates of the ITFS response station transmitting antenna.

(2) The manufacturer's name, type number, operating frequency, and power output of the proposed ITFS response station transmitter.

(3) The type of transmitting antenna, power gain, and azimuthal orientation of the major lobe of radiation in degrees measured clockwise from True North.

(4) A sketch giving pertinent details of the ITFS response station transmitting antenna installation including ground elevation of the transmitter site above mean sea level; overall height above ground, including appurtenances, of any ground-mounted tower or mast on which the transmitting antenna will be mounted or, if the tower or mast is or will be located on an existing building or other manmade structure, the separate heights above ground of the building and the tower or mast including appurtenances; the location of the tower or mast on the building; the location of the transmitting antenna on the tower or mast; and the overall height of the transmitting antenna above ground. This can be combined with the sketch for the receiving location if the transmitting antenna is clearly shown.

(c) See Part 17 of this Chapter concerning notification to the Federal Aviation Administration of proposed antenna construction or alteration. The provisions of §§ 74.967 and 74.981 (a) (5), concerning an-

antenna painting and lighting requirements, apply to ITFS response stations as well as main ITFS stations.

(d) All ITFS response stations communicating with a single instructional television fixed station shall operate on the same frequency. The specified frequency which may be used is determined by the channel assigned to the instructional television fixed station with which it is communicating, as shown in the following table. Operation on other ITFS response channels is prohibited.

ITFS Channel No.	Response Frequency (MHz)
A-1	2686.0625
A-2	2687.0625
A-3	2688.0625
A-4	2689.0625
B-1	2686.1875
B-2	2687.1875
B-3	2688.1875
B-4	2689.1875
C-1	2686.3125
C-2	2687.3125
C-3	2688.3125
C-4	2689.3125
D-1	2686.4375
D-2	2687.4375
D-3	2688.4375
D-4	2689.4375
E-1	2686.5625
E-2	2687.5625
E-3	2688.5625
E-4	2689.5625
F-1	2686.6875
F-2	2687.6875
F-3	2688.6875
F-4	2689.6875
G-1	2686.8125
G-2	2687.8125
G-3	2688.8125
G-4	2689.8125

(e) Transmitter power output will normally be limited to no more than 250 milliwatts. Upon a special showing of need, transmitter power output of up to 2 watts may be permitted.

(f) The channels assigned to ITFS response stations are 125 kHz in width. The assigned frequency is at the center of the channel. Either frequency or amplitude modulation may be employed. If amplitude modulation is used, the carrier shall not be modulated in excess of 100 percent. If frequency modulation is employed, the maximum carrier excursion resulting from modulation shall not be greater than 25 kHz above and below the unmodulated carrier frequency. Any excursion appearing outside the authorized channel, including radio frequency harmonics, shall be attenuated no less than 60 decibels below the peak power of the unmodulated carrier. Greater attenuation may be required if interference is caused by out-of-band emissions.

(g) The unmodulated carrier frequency shall be maintained within 35 kHz of the assigned frequency at all times. Adequate means shall be provided to insure compliance with this rule.

(h) A directive transmitting antenna shall be employed, oriented toward the transmitter site of the associated instructional television fixed station. The

beamwidth between half power points shall not exceed 15° and radiation in any minor lobe of the antenna radiation pattern shall be at least 20 dB below the power in the main lobe of radiation.

(i) The transmitter of an ITFS response station may be operated unattended provided that the transmissions are observed by the operator on duty at the associated instructional television fixed station, who shall take such steps as may be necessary to correct any condition of improper operation. The overall performance of the ITFS response station transmitter shall be checked as often as is necessary to insure that it is functioning in accordance with the requirements of the Commission rules and in any case, at intervals of no more than 1 month. An entry shall be made in the operating log giving the date and results of these checks. The licensee of an ITFS response station is responsible for the proper operation of the transmitter at all times. The transmitter shall be installed and protected in such manner as to prevent tampering or operation by unauthorized persons.

(j) After approval by the Commission the original of the authorization shall be posted at the ITFS station and a legible photocopy of the appropriate page of section VI of Form 330P shall be posted at or attached to each response transmitter.

(k) The transmitting apparatus employed at ITFS response stations shall have received type acceptance in accordance with § 74.952.

(l) An ITFS response station shall be operated only when engaged in communication with its associated instructional television fixed station or for necessary equipment or system tests and adjustments. Radiation of an unmodulated carrier and other unnecessary transmissions are forbidden.

(m) The requirements of § 74.981 apply with regard to logging requirements.

(n) Individual call signs will not be assigned to ITFS response stations. It is assumed that in normal usage the location and identity of an ITFS response station can be determined by the content of its communications. If such is not the case, provision shall be made to announce the location at intervals of no more than one-half hour whenever the transmitter is being operated.

EQUIPMENT

§ 74.950 Equipment performance and installation.

(a) Except as otherwise provided in this section, the requirements of § 73.687 of this chapter regarding the installation and performance of television broadcast transmitters and associated equipment shall apply to instructional television fixed stations.

(b) The overall attenuation characteristics of the transmitter may vary from those specified in § 73.687 of this chapter to the extent that such variations result from permissible lower sideband radiation. However, care should be exercised in the adjustment of the transmitter to insure correct overall response of the trans-

mitter for proper transmission of the upper and vestigial lower sideband.

(c) The provisions of § 74.961 in lieu of § 73.687 (c) (1) of this chapter apply with respect to the frequency tolerance for the visual carrier.

(d) The provisions of § 74.936 in lieu of § 73.687 (1) (1) of this chapter apply with respect to spurious emissions and radiofrequency harmonics.

(e) The requirements of § 73.687 (c) (2) of this chapter will be considered to be met insofar as measurements of operating power are concerned, if the transmitter is equipped with instruments for determining the combined visual and aural operating power. However, licensees are expected to maintain the operating power within the limits specified in the rules of this part. Measurements of the separate visual and aural operating powers should be made at sufficiently frequent intervals to insure compliance with the rules and in no event less often than once a month.

(f) Transmitting apparatus (translators and boosters) used solely for relaying signals received from other ITFS stations and operating in the manner described in § 74.934 (a) (2) shall meet the following requirements before being type accepted by the Commission.

(1) The frequency converter and associated amplifiers shall be so designed that the electrical characteristics of a standard television signal introduced into the input terminals will not be significantly altered by passage through the apparatus except as to frequency and amplitude. The overall response of the apparatus within its assigned channel when operating at its rated power output and measured at the output terminals, shall provide a smooth curve, varying within limits separated by no more than 4 dBs: *Provided, however*, That means may be provided to reduce the amplitude of the aural carrier below those limits, if necessary to prevent intermodulation which would mar the quality of the retransmitted picture or result in emissions outside of the assigned channel.

(2) The suppression of emissions appearing outside of the assigned channel shall comply with § 74.936 (b) and (c).

(3) The local oscillator employed in the frequency converter shall maintain its operating frequency within 0.02 percent of its rated frequency when subjected to variations in ambient temperature between minus 30° and plus 50° centigrade and variations in powerline voltage between 85 percent and 115 percent of the rated supply voltage.

(4) The apparatus shall contain automatic circuits which will maintain peak visual power output constant within 2 decibels when the strength of the input signal is varied over a range of 30 decibels and which will not permit the peak visual power output to exceed the maximum rated power output under any conditions. If a manual adjustment is provided to compensate for

different average signal intensities, provision shall be made for determining the proper setting for the control. If improper adjustment of the control could result in improper operation a label bearing a suitable warning shall be affixed at the adjustment control: *Provided, however*, That apparatus with an output of 50 milliwatts peak visual power per channel or less need not comply with this paragraph, provided the equipment is so designed that the rated output power of the transmitter cannot be exceeded by more than 3 dB by an increase in the input signal.

(5) The apparatus shall be equipped with automatic controls which will place it in a nonradiating condition when no signal is being received on the input channel, either due to absence of a transmitted signal or failure of the receiving portion of the relay transmitter. In the case of equipment (translators or boosters) of 50 milliwatts peak visual power per channel or less relaying more than one channel it shall be turned off in the absence of the last signal to be relayed. The automatic control may include a time delay feature to prevent interruptions in the operation of the relay transmitter caused by fading or other momentary failures of the incoming signal.

(6) The tube(s) or transistor(s) employed in the final radio frequency amplifier shall be of the appropriate power rating to provide the rated power output of the relay transmitter. The normal operating constants for operation at the rated power output shall be specified. The apparatus shall be equipped with suitable meters or meter jacks so that appropriate voltage and current measurements may be made while the apparatus is in operation.

(7) Boosters used in this service shall comply with all the provisions of this paragraph except with subparagraph (3). However, in addition, the isolation between the input and output circuits of the booster, including the receiving and transmitting antenna systems shall be at least 20 dBs greater than the maximum overall gain of the booster amplifier. Boosters may use opposite antenna polarization of the input and output antennas.

#### § 74.951 Modification of transmission systems.

Formal application on FCC Form 330-P is required for any of the following changes or modifications of the transmission system:

(a) Replacement of the transmitter as a whole, except replacement with a transmitter of identical power rating which has been type accepted by the FCC for use by instructional TV fixed stations, or any change which could result in a change in the electrical characteristics or performance of the station. Upon the installation or modification of the transmitting equipment for which prior FCC authority is not required under the provisions of this paragraph, the licensee

shall place in the station records a certification that the new installation complies in all respects with the technical requirements of this part and the terms of the station authorization.

(b) Any change in the antenna system affecting the direction of radiation, directive radiation pattern, antenna gain, or radiated power.

(c) Any change in the overall height of the antenna structure, except where notice to the Federal Aviation Administration is specifically not required under § 17.14(b) of the FCC Rules.

(d) Any change in the transmitter control system.

(e) Any change in the location of the transmission system except a move within the same building or upon the same antenna supporting structure.

(f) A change in frequency assignment.

(g) A change in the operating power.

**[§ 74.951 amended eff. 4-30-80; III(80)-1]**

**§ 74.952 Acceptability of equipment for licensing.**

(a) Transmitters employed in this service must have type acceptance by the Commission. Type acceptance may be given under either of the following conditions:

(1) A transmitter or translator may be type accepted upon the request of any manufacturer of such equipment built in quantity by following the type acceptance procedure set forth in Part 2 of this Chapter, provided that the date and information submitted indicate that the equipment meets all technical requirement applicable to this service. If accepted such transmitting equipment will be included on the Commission's "Radio Equipment List, Equipment Acceptable for Licensing." Applicants specifying equipment included on such a list need not submit detailed descriptions and diagrams where the correct type number is specified, provided that the equipment proposed is identical with that accepted. Copies of the Radio Equipment List are available for inspection at the Commission's office in Washington, D.C., and at each of its field offices.

(2) An application specifying a transmitter or translator not included on the Radio Equipment List, may be accepted upon the request of a prospective licensee submitting, with the application for construction permit, a complete description of the equipment, including the circuit diagram, listing of all tubes used, function of each, multiplication in each stage, plate current and voltage applied to each tube, and a description of the oscillator circuit together with any devices installed for the purpose of frequency stabilization. However, if this data has been filed with the Commission by a manufacturer in connection with a request for type acceptance, it need not be submitted with the application for construction permit but may be referred to as "on file." Measurement data for type

acceptance made in accordance with subparagraph (1) of this paragraph shall be submitted with the license application.

(b) Additional rules with respect to withdrawal of type acceptance, modification of type accepted equipment, and limitations on the findings upon which type acceptance is based are set forth in Part 2 of this Chapter.

**TECHNICAL OPERATION AND OPERATORS**

**§ 74.961 Frequency tolerance.**

(a) The frequency of the visual carrier shall be maintained within 60 kHz of the assigned frequency at all times when the station is in operation.

(b) The frequency of the aural carrier shall be maintained in accordance with the provisions of § 73.1545 of this Chapter.

**§ 74.962 Frequency monitors and measurements.**

(a) Suitable means shall be provided to insure that the operating frequencies of the station are within the prescribed tolerances.

(b) The operating frequencies shall be checked as often as is necessary to insure that they are within the prescribed tolerances at all times and in all cases the operating frequencies shall be checked at intervals of no more than 1 month.

(c) A determination of the operating frequencies of the visual and aural carriers may be made by measuring any exact submultiple of the actual output frequency. Any crude but suitable device, including a roughly calibrated receiver, may be used to determine that the output frequency is the correct multiple of the frequency controlling element in the transmitter.

**§ 74.963 Time of operation.**

(a) An instructional television fixed station is not required to adhere to any regular schedule of operation. Unless otherwise specified in the license, the hours of operation are not limited.

(b) Except for purposes of tests and adjustments, the transmitter shall not be permitted to radiate unmodulated carriers or otherwise make unnecessary transmissions for extended periods of time.

**§ 74.964 Station inspection.**

The station and all records required to be kept by the licensee shall be made available for inspection upon request by any authorized representative of the Commission.

**§ 74.965 Posting of station and operator licenses.**

(a) The station license and any other instrument of authorization or individual order concerning the construction of the equipment or manner of operation shall be posted at the place where the transmitter is located, so that all terms thereof are visible, except

as otherwise provided in paragraphs (b) and (c) of this section.

(b) In cases where the transmitter is operated by remote control, the documents referred to in paragraph (a) of this section shall be posted in the manner described at the control point of the transmitter, and

(c) In cases where the transmitter is operated unattended, the name of the licensee and the call sign of the unattended station shall be displayed at the transmitter site on the structure supporting the transmitting antenna, so as to be visible to a person standing on the ground at the transmitter site. The display shall be prepared so as to withstand normal weathering for a reasonable period of time and shall be maintained in a legible condition at all times by the licensee. The station license and other documents referred to in paragraph (a) of this section shall be kept at the nearest attended station operated by the licensee of the unattended station or in cases where the licensee of the unattended station does not operate attended stations, at the point of destination of the signals relayed by the unattended station.

(d) The original of each station operator license shall be posted at the place where he is on duty: *Provided, however,* That if the original license of a station operator is posted at another radio transmitting station in accordance with the rules governing the class of station and is there available for inspection by a representative of the Commission, a verification card (FCC Form 758-F) is acceptable in lieu of the posting of such license: *Provided further, however,* That if the operator on duty holds an operator permit of the card form (as distinguished from the diploma form), he shall not post that permit but shall keep it in his personal possession.

#### § 74.966 Operator requirements.

(a) An instructional TV/(ITFS) fixed station, used for the origination of visual and aural program material or the transmitter of which is modulated with visual and aural program material received from other sources, must be operated by a person holding any class of commercial radio operator license or permit, on duty at the place where the transmitter is located or at an authorized control point established pursuant to the provisions of § 74.933, and in actual charge thereof.

(b) Except when under the immediate supervision of a first-class or second-class radiotelephone licensed operator, a person holding any other class of commercial radio operator license or permit may perform only the following operating functions:

(1) Those necessary to turn the transmitter on and off.

(2) Such adjustments as may be made by means of external controls and which are necessary to maintain modulation of the transmitter within the prescribed limits.

(3) Such adjustments as may be made by means of external controls and which are necessary to com-

pensate for fluctuations of the power supply voltage which would otherwise result in changes in the authorized operating power.

(4) Make routine meter readings and inspection of antenna hazard marking for logging purposes.

(c) In cases where a transmitter is operated unattended pursuant to the provisions of § 74.934, an operator of the grade specified in paragraph (a) of this section shall observe the transmissions at the receiving point for the station or some other suitable place where the transmissions of the unattended station can be observed, at intervals of no more than 1 hour whenever the station is in operation. Should any condition of improper operation be observed, immediate measures shall be instituted to correct the condition of improper operation.

(d) Any tests, adjustments, or repairs made while the transmitter is in operation and which require technical skill and knowledge to avoid improper operation, shall be made by or under the immediate supervision of an operator holding a valid radiotelephone first-class or second-class operator license.

(e) The licensed operator on duty and in charge of an instructional television fixed station may, at the discretion of the licensee, be employed for other duties or for the operation of another station or stations in accordance with the class of operator license or permit which he holds and the rules and regulations governing such stations. However, such duties shall in no way impair or impede the required supervision of the instructional television fixed station.

【§74.966 (b) revised eff. 4-30-80; III(80)-1】

#### § 74.967 Antenna structure, marking and lighting.

The painting and lighting of antenna structures employed by stations licensed under this subpart, where required, will be specified in the authorization issued by the Commission. Section 74.22 and Part 17 of this chapter set forth the conditions under which painting and lighting will be required and the responsibility of the licensee with regard thereto.

#### § 74.968 Additional orders.

In case of the rules of this part do not cover all phases of operation with respect to external effects, the Commission may make supplemental or additional orders in each case as may be deemed necessary.

#### § 74.969 Copies of the rules.

The licensee of an instructional television fixed station shall have current copies of Parts 73 and 74, and in cases where aeronautical hazard marking of antennas is required, Part 17 of this Chapter available for use by the operator in charge. Both the licensee and the operator or operators responsible for the proper operation of the station are expected to be familiar with the pertinent rules governing instructional television fixed stations.

**§ 74.970 Modulation limits.**

(a) *Visual transmitter.* The maximum excursion of the luminance signal in the white direction shall not exceed the value specified in § 73.682(a)(13) of this Chapter for the reference white level.

(b) *Aural transmitter.* The maximum frequency deviation of the aural carrier shall not be permitted to exceed  $\pm 25$  kHz on peaks of frequent occurrence during any transmission. This is defined as 100% modulation.

[§ 74,790 (b) revised eff 4-30-80; III(80)-1]

**§ 74.971 Modulation monitors and measurements.**

Suitable means shall be provided to insure that the modulation limits specified in § 74.970 are observed.

**OTHER OPERATING REQUIREMENTS****§ 74.981 Logs.**

(a) The licensee of an instructional television fixed station shall maintain an operating log showing the following:

(1) The date and time of the beginning of each period of operation of the transmitter.

(2) The date and time of any unscheduled interruptions to the transmissions of the station, the duration of such interruptions, and the causes thereof.

(3) The date and time of the end of each period of operation of the transmitter.

(4) A record of all repairs, adjustments, maintenance, tests, and equipment changes, showing the date and time of such events, the name and qualifications of the person or persons performing such tasks, and a brief description of the matter logged.

(5) Entries required by § 17.49 (a), (b), and (c) of this Chapter concerning the time the tower lights are turned on and off each day if manually controlled, the time the daily check of proper operation of the tower lights was made if automatic alarm system is not provided, and any observed failure of the lighting system. See § 17.47(a) for daily tower lighting observation or automatic alarm system requirements.

(6) Entries required by § 17.49(d) of this Chapter concerning quarterly inspections of the condition of the tower lights and associated control equipment; when adjustments, replacement or repairs are made to insure compliance with the lighting requirements; and when towers are cleaned or repainted as required by § 17.50 of this Chapter.

(b) The log entries shall be made by the person or persons competent to do so, having actual knowledge of the facts required, who shall sign the log when starting duty and again when going off duty.

(c) The log shall be kept in an orderly and legible manner, in suitable form, and in such detail that the data required are readily available. Key letters or abbreviations may be used if proper meaning or explanation is contained elsewhere in the log.

(d) No log or portion thereof shall be erased, obliterated, or willfully destroyed within the period of retention required by rule. Any necessary correction may be made only by the person who made the original entry who shall strike out the erroneous portion, initial the correction made, and show the date the correction was made.

(e) Operating logs shall be retained for a period of not less than 2 years. The Commission reserves the right to order, in individual cases, retention of logs for a longer period of time. In cases where the licensee has notice of any claim or complaint to which information contained in the log may be pertinent, the log shall be retained until such claim or complaint has been fully satisfied or until the same has been barred by statute limiting the time for the filing of suits upon such claims.

**§ 74.982 Station identification.**

(a) Call signs for instructional television fixed stations will consist of three letters and three digits pursuant to the provisions of § 2.302 of this Chapter relating to fixed stations.

(b) Except as otherwise provided in Paragraphs (c) and (d) of this section, each instructional television fixed station shall transmit its call sign at the beginning and end of each period of operation and, during operation, on the hour. Visual or aural transmissions shall be employed.

(c) The hourly station identification announcement during operation may be deferred if it would interrupt a single consecutive demonstration, lecture, or other similar discourse or otherwise impair the continuity of a program in progress. In such cases the station identification announcement shall be made at the first normal break in the continuity of the program.

(d) In cases where an instructional television fixed station is operating as a relay for signals originating at some other station operated by the same licensee, its call sign shall be announced by the originating station at the times and in the manner prescribed in paragraph (b) of this section.

(e) Where an instructional television fixed station is operating as a relay for signals originating at a station operated by some other licensee, its call sign may be transmitted by the originating station, if suitable arrangements can be made with the other licensee, or means shall be provided for the transmission of the call sign by the relay transmitter itself. Low power relay stations, authorized by § 74.950(f)(4) will not be assigned individual call signs. Station identification will be accomplished by the retransmission of the call sign of the primary station.

**§ 74.984 Retransmissions.**

An instructional television fixed station may not retransmit the signals of any class of station without consent of the station originating the signals to be retransmitted.



**SUBPART J—[RESERVED]****SUBPART K—[RESERVED]****SUBPART L—FM BROADCAST TRANSLATOR STATIONS AND FM BROADCAST BOOSTER STATIONS****DEFINITIONS AND ALLOCATIONS OF FREQUENCIES****§ 74.1201 Definitions.**

(a) *FM translator*. A station in the broadcasting service operated for the purpose of retransmitting the signals of an FM radio broadcast station or another FM broadcast translator station without significantly altering any characteristics of the incoming signal other than its frequency and amplitude, in order to provide FM broadcast service to the general public.

(b) *Commercial FM translator*. An FM broadcast translator station which broadcasts the signals of a commercial FM radio broadcast station.

(c) *Noncommercial FM translator*. An FM broadcast translator station which rebroadcasts the signals of a noncommercial educational FM radio broadcast station.

(d) *Primary station*. The FM radio broadcast station radiating the signals which are retransmitted by an FM broadcast translator station or an FM broadcast booster station.

(e) *FM radio broadcast station*. When used in this Subpart L, the term FM broadcast station or FM radio broadcast station refers to commercial and noncommercial educational FM radio broadcast stations as defined in § 2.1 of this chapter, unless the context indicates otherwise.

(f) *FM broadcast booster station*. A station in the broadcasting service operated for the sole purpose of retransmitting the signals of an FM radio broadcast station by amplifying and reradiating such signals which have been received directly through space from the FM radio broadcast station, without significantly altering any characteristic of the incoming signal other than its amplitude.

**[§ 74.1201(a) amended eff. 7-7-80; III(80)-1]**

**§ 74.1202 Frequency assignment.**

(a) An applicant for a new FM broadcast translator station or for changes in the facilities of an authorized translator station shall endeavor to select a channel on which its operation is not likely to cause interference to the reception of other stations. The application must be specific with regard to the frequency requested. Only one output channel will be assigned to each translator station.

(b) Subject to compliance with all the requirements of this subpart, FM broadcast translators may be authorized to operate on the following FM channels regardless of whether they are assigned for local use in the FM Table of Assignments (§ 73.202(b) of this chapter):

(1) Commercial FM translators: Class A channels so designated in § 73.206(a)(1) of this chapter:

(2) Noncommercial FM translators: The channels available for noncommercial use under § 73.501 of this chapter:

(3) Channels 201-260 (88.1 MHz through 99.9 MHz) are allocated for government radio services and nongovernment fixed service in Alaska and these frequencies will not be assigned for use by FM translators in Alaska. Channels 251 through 300 (98.1 MHz through 107.9 MHz) are allocated for nonbroadcast use in Hawaii and these frequencies will not be assigned for use by FM translators in Hawaii.

(c) No minimum distance separation between FM translators operating on the same channel is specified. However, assignments which will obviously result in mutual interference between translators will not be made.

(d) Adjacent channel assignments will not be made to FM translators intended to serve all or part of the same area.

(e) An FM broadcast booster station will be assigned the channel assigned to its primary station.

NOTE: A translator must comply with the mileage separations to Mexican FM channel assignments and authorizations as Class D FM stations set forth in the Note to § 73.207 of this chapter.

**§ 74.1203 Interference.**

(a) FM translators will be authorized and permitted to continue to operate only where they cause no interference to the direct reception by the public of the off-the-air signals of any authorized broadcast station including Class D (secondary) noncommercial educational FM stations. FM translators shall not cause harmful interference to the transmissions of any other authorized radio station nor shall an FM translator cause interference to reception by a television broadcast translator station of its input signals. FM translator stations which may cause any such interference will not be authorized.

(b) Interference will be considered to occur whenever reception of a regularly used off-the-air signal by viewers or listeners is impaired by the signals radiated by the translator, regardless of the quality of such reception, the strength of the signals so used, or the channel on which the protected signal is transmitted.

(c) If interference cannot be promptly eliminated by the application of suitable techniques, operation of the offending translator shall be immediately suspended and shall not be resumed until the interference has been eliminated. Short test transmissions may be made during the period of suspended operation to check the efficacy of remedial measures. If a complainant refuses to permit the translator licensee to apply remedial techniques which demonstrably will eliminate the interference without impairment to the original reception, the licensee of the translator is absolved of further responsibility.

(d) It shall be the responsibility of the licensee of an FM translator station to correct any condition of interference which results from the radiation of radio frequency energy by its equipment on any frequency outside the assigned channel. Upon notice by the Commission to the station licensee or operator that such interference is being caused, the operation of the translator station shall be immediately suspended and shall not be resumed until the interference has been eliminated or it can be demonstrated that the interference is not due to spurious emissions by the FM translator station; *Provided, however*, That short test transmissions may be made during the period of suspended operation to check the efficacy of remedial measures.

#### LICENSING POLICIES AND GENERAL OPERATING REQUIREMENTS

##### § 74.1231 Purpose and permissible service.

(a) FM translators provide a means whereby the signals of FM broadcast stations may be retransmitted to areas in which direct reception of such FM broadcast stations is unsatisfactory due to distance or intervening terrain barriers.

(b) Except as provided in paragraphs (f) and (g) of this section, an FM translator may be used only for the purpose of retransmitting the signals of an FM broadcast station or another FM translator station which have been received directly through space, converted, and suitably amplified.

(c) The transmissions of each FM translator shall be intended for direct reception by the general public and any other use shall be incidental thereto. An FM translator shall not be operated solely for the purpose of relaying signals to one or more fixed received points for retransmission, distribution, or further relaying.

(d) The technical characteristics of the retransmitted signals shall not be deliberately altered so as to hinder reception on conventional FM broadcast receivers.

(e) An FM translator shall not deliberately retransmit the signals of any station other than the station it is authorized by license to retransmit. Precautions shall be taken to avoid unintentional retransmission of such other signals.

(f) A locally generated radio frequency signal similar to that of an FM broadcast station and modulated with aural information may be connected to the input terminals of an FM translator for the purpose of transmitting voice announcements. The radio frequency signals shall be on the same channel as the normally used off-the-air signal being rebroadcast. Connection of the locally generated signals shall be made automatically by means of a time-switch when transmitting originations concerning financial support. The connection for emergency transmissions may be made manually. The apparatus used to generate the local signal that is used to modulate the FM translator must be capable of producing an aural signal which will pro-

vide acceptable reception on FM receivers designed for the transmission standards employed by FM broadcast stations.

(g) The aural material transmitted as permitted in paragraph (f) of this Section shall be limited to emergency warnings of imminent danger and to seeking or acknowledging financial support deemed necessary to the continued operation of the translator. Accordingly, the originations concerning financial support are limited to 30 seconds no more than once an hour and to the solicitation of contributions toward defrayal of the costs of installation, operation, and maintenance of the translator or acknowledgments of financial support for those purposes. Such acknowledgments may include identification of the contributors, the size or nature of the contributions and advertising messages of contributors. Emergency transmissions shall be no longer or more frequent than necessary to protect life and property.

(h) FM broadcast booster stations provide a means whereby the licensee of an FM radio broadcast station may provide service to areas of low signal intensity in any region within the primary station's predicted 1 mV/m field strength contour. An FM broadcast booster station is authorized to retransmit only the signals of its primary station; it shall not retransmit the signals of any other station nor make independent transmissions: *Provided, however*, That locally generated signals may be used to excite the booster apparatus for the purpose of conducting tests and measurements essential to the proper installation and maintenance of the apparatus.

**NOTE:** In the case of an FM broadcast station authorized with facilities in excess of those specified by § 73.211 of this chapter, an FM booster station will only be authorized within the 1 mV/m contour as predicted on the basis of the maximum powers and heights set forth in that section for the applicable class of the FM broadcast station concerned.

(i) The transmissions of an FM broadcast booster station shall be intended for direct reception by the general public. Such stations will not be authorized to establish a point-to-point FM radio relay system.

[§ 74.1231 (f) and (g) amended eff. 7-7-80; III (80)-1]

##### § 74.1232 Eligibility and licensing requirements.

(a) Subject to the restrictions set forth in paragraph (d) of this section, a license for an FM broadcast translator station may be issued to any qualified individual, organized group of individuals, broadcast station licensee, or local civil governmental body, upon an appropriate showing that plans for financing the installation and operation of the translator are sufficiently sound to assure prompt construction of the translator and dependable service.

(b) More than one FM translator may be licensed to the same applicant, whether or not such translators serve substantially the same area, upon an appropriate showing of need for such additional stations. FM translators are not counted as FM stations for the

purposes of § 73.240 of this Chapter, concerning multiple ownership.

(c) Only one input and one output channel will be assigned to each FM translator. Additional FM translators may be authorized to provide additional reception. A separate application shall be complete in all respects.

(d) An authorization for a commercial FM translator which is intended to provide reception to places which are beyond the predicted 1 mV/m field strength contour of the primary station and within the predicted 1 mV/m field strength contour of another commercial FM radio broadcast station assigned to a different principal community will not be granted to:

(1) The licensee or permittee of an FM broadcast station, or

(2) An applicant who receives from such FM radio broadcast station licensee or permittee or from any person associated therewith, directly or indirectly, any financial support or contribution toward the costs incurred up to the time such translator commences operation.

NOTE 1: The 1 mV/m field strength contour of an FM radio broadcast station, for the purposes of this subpart, shall be the contour as predicted in accordance with § 73.313 (a) through (d) of this Chapter. See Note, § 74.1231 (h).

NOTE 2: Financial support prohibited in paragraph (d) includes only support for the preparation, filing and prosecution of applications for new FM translators, for the acquisition and installation of transmitting and other apparatus employed by such FM translators, and for the defrayal of any other costs necessary to placing such FM translators in operation. Paragraph (d) thus will not bar or limit contributions or support, by any station licensee or permittee or any person associated therewith, for the operation or maintenance of an FM translator, whether such support is provided in the form of financial contributions or by providing operation or maintenance services or advice.

(e) An FM broadcast booster station will be authorized only to the licensee or permittee of the FM radio broadcast station whose signals the booster station will retransmit, to serve areas within the predicted 1 mV/m field strength contour of the primary station, subject to Note, § 74.1231 (h).

(f) No numerical limit is placed upon the number of FM booster stations which may be licensed to a single licensee. A separate application is required for each FM booster station. FM broadcast booster stations are not counted as FM broadcast stations for the purposes of § 73.240 of this Chapter, concerning multiple ownership.

(g) Each application for an FM broadcast booster station shall include a statement concerning the steps which have been taken in the design and location of the equipment to insure that areas of service from the primary FM station will not be degraded by operation of the FM booster station.

(h) Any authorization for an FM translator station issued to an applicant described in paragraph (d) of this Section will be issued subject to the condition that it may be terminated at any time, upon not less than sixty (60) days written notice, where the circumstances in the community or area served are so altered as to have prohibited grant of the application had such circumstances existed at the time of its filing.

#### § 74.1234 Unattended operation.

(a) A station authorized under this subpart may be operated without a licensed radio operator in attendance if the following requirements are met:

(1) If the transmitter site cannot be reached promptly at all hours and in all seasons, means shall be provided so that the transmitting apparatus can be turned on and off at will from a point which is readily accessible at all hours and in all seasons.

(2) The transmitter shall also be equipped with suitable automatic circuits which will place it in a nonradiating condition in the absence of a signal on the input channel.

(3) The on-and-off control (if at a location other than the transmitter site) and the transmitting apparatus, shall be adequately protected against tampering by unauthorized persons.

(4) The Commission shall be supplied with the name, address, and telephone number of a person or persons who may be contacted to secure suspension of operation of the translator promptly should such action be deemed necessary by the Commission. Such information shall be kept current by the licensee.

(5) Where the antenna and supporting structure are required to be painted and lighted under the provisions of Part 17 of this Chapter, the licensee shall make suitable arrangements for the daily inspection and logging of the obstruction lighting and associated control equipment as required by §§ 17.47, 17.48, and 17.49 of this Chapter.

(b) An application for authority to construct a new station pursuant to this subpart or to make changes in the facilities of such a station, which proposes unattended operation shall include an adequate showing as to the manner of compliance with this Section.

(c) Unless the applicant specifically requests unattended operation and makes the showing required by paragraph (b) of this Section, a licensed radio operator meeting the requirements of § 74.1266 shall be on duty at the transmitter site whenever the station is operated.

#### § 74.1235 Power limitations.

(a) The power output of the final radiofrequency amplifier of a station authorized under this subpart shall not exceed 10 watts, except that FM broadcast translator stations serving areas east of the Mississippi River or in Zone I-A shall be limited to 1 watt. This power may be fed into a single transmitting antenna or may be divided between two or more transmitting antennas or antenna arrays in any manner found useful or desirable by the licensee. In individual cases, the Commission may authorize the use of more than one final radiofrequency amplifier at a single station under the following conditions:

(1) Each such amplifier shall be used to serve a different community or area. More than one final radio frequency amplifier shall not be authorized to provide service to all or part of the same community or

area, except as provided in subparagraph (2) of this paragraph.

(2) The transmitting antennas or antenna arrays shall be so designed and installed that the radiated fields from the separate antennas shall not combine in any direction in any single plane of polarization to achieve the effect of radiated power in excess of that which would be produced by a single antenna or antenna array fed by a radio frequency amplifier with power output no greater than that authorized pursuant to paragraph (a) of this Section. Two radio frequency amplifiers may be used to serve the same community if one is used to feed an antenna designed to produce a horizontally polarized signal, and the other a vertically polarized signal.

NOTE: The provisions of § 74.1235 (a) (1) and (2) will not apply to 1-watt stations serving areas west of the Mississippi River outside of Zone 1-A. See § 73.205 (b) of this Chapter.

(3) Stations authorized under this Subpart employing multiple radiofrequency amplifiers will be licensed as a single station.

(4) No limit is placed upon the effective radiated power which may be obtained by the use of horizontally or vertically or horizontally and vertically polarized directive transmitting antennas.

(b) In no event shall a station authorized under this subpart be operated with a power output in excess of the transmitter type-accepted rating.

**§ 74.1236 Emissions and bandwidth.**

(a) The license of a station authorized under this subpart authorizes the transmission of either F3 or F9 emission (frequency modulation).

(b) Standard width FM channels will be assigned and the transmitting apparatus shall be operated so as to limit spurious emissions to the lowest practicable value. Any emissions including intermodulation products and radiofrequency harmonics which are not essential for the transmission of the desired aural information shall be considered to be spurious emissions.

(c) The power of emissions appearing outside the assigned channel shall be attenuated below the total power of the emission as follows:

<i>Distance of emission from center frequency</i>	<i>Minimum attenuation below unmodulated carrier</i>
120 to 240 kHz .....	25 dB
over 240 and up to 600 kHz .....	35 dB
over 600 kHz .....	60 dB

(d) Greater attenuation than that specified in paragraph (c) of this Section may be required if interference results outside the assigned channel.

**§ 74.1237 Antenna location.**

(a) An applicant for a new station to be authorized under this subpart or for a change in the facilities of such a station shall endeavor to select a site which will provide a line-of-sight transmission path to the entire area intended to be served and at which there is available a suitable signal from the primary station. The

transmitting antenna should be placed above growing vegetation and trees lying in the direction of the area intended to be served, to minimize the possibility of signal absorption by foliage.

(b) Consideration should be given to accessibility of the site at all seasons of the year and to the availability of facilities for the maintenance and operation of the FM translator.

(c) Consideration should be given to the existence of strong radiofrequency fields from other transmitters at the translator site and the possibility that such fields may result in the retransmission of signals originating on frequencies other than that of the primary station.

(d) The transmitting antenna of an FM broadcast booster station shall be located within the predicted 1 mV/m field strength contour of its primary station, subject to note, § 74.1231 (h).

**EQUIPMENT**

**§ 74.1250 Equipment and installation.**

(a) Applications for new stations authorized under this subpart or for changes in the facilities of existing stations will not be accepted for filing unless the transmitting apparatus to be employed is type accepted.

(b) Transmitting antennas, antennas used to receive signals to be rebroadcast, and transmission lines are not subject to the requirement for type acceptance.

(c) The following requirements must be met before translator or booster equipment will be type accepted by the Commission:

(1) The frequency converter and associated amplifiers of an FM translator shall be so designed that the electrical characteristics of a standard FM signal, including stereophonic subchannel, introduced into the input terminals will not be significantly altered by passage through the apparatus except as to frequency and amplitude. The overall frequency response of the apparatus within its assigned channel when operating at its rated power output and measured at the output terminals, shall provide a smooth curve, varying within limits separated by no more than 3 dB.

(2) Radiofrequency harmonics of the output carrier frequency measured at the output terminals of the transmitter, shall be attenuated at least 60 decibels below the fundamental output carrier level. All other emissions appearing outside the assigned channel shall conform with the specifications set forth in § 74.1236 (c).

(3) The local oscillator or oscillators employed in the translator equipment shall, when subjected to variations in ambient temperature between minus 30° and plus 50° centigrade and in primary supply voltage between 85 percent and 115 percent of the rated value, be sufficiently stable to maintain the output carrier frequency of the translator within plus or minus 0.005 percent of its assigned frequency, assuming zero vari-

ation of the received primary station signal from its assigned frequency.

(4) The apparatus shall contain automatic circuits which will maintain the power output constant within 2 dB when the level of the signal at the input terminals is varied over a range of 40 dB and which will not permit power output to exceed the maximum rated power output under any condition. If a manual adjustment is provided to compensate for different average signal levels, provision shall be made for determining the proper setting for the control and if improper adjustment of the control could result in improper operations, a label shall be affixed at the adjustment control bearing a suitable warning.

(5) The apparatus shall be equipped with automatic controls which will place it in a nonradiating condition when no signal is being received on the input channel, either due to absence of a transmitter signal or failure of the receiving portion of the translator or booster. The automatic control may include a time delay feature to prevent interruptions in the operation of the station caused by fading or other momentary failures of the incoming signal.

(6) The amplifying devices employed in the final radiofrequency amplifier shall be of the appropriate power rating to provide the rated power output of the translator or booster. The normal operating constants for operation at the rated power output shall be specified. The apparatus shall be equipped with suitable meters or meter jacks so that appropriate voltage and current measurements may be made while the apparatus is in operation.

(7) Transmitters of FM broadcast translator stations of more than 1 watt transmitter output power shall be equipped with an automatic keying device which will transmit the call sign assigned to the station, in International Morse Code, at least once each 30 minutes during the time the station is in operation unless there is in effect a firm arrangement with the station's primary station as provided in § 74.1283 (c) (1). Transmission of the call sign can be accomplished in either of the following ways:

(i) By frequency shift keying; the carrier shift shall not be less than 5 kHz nor greater than 25 kHz;

(ii) By amplitude modulation of the FM carrier of at least 30% modulation. The audio frequency tone used shall not be within 200 hertz of the Emergency Broadcast System Attention Signal alerting frequencies.

(8) Wiring, shielding, and construction shall be in accordance with accepted principles of good engineering practice.

(d) The exciter employed to provide a locally generated and modulated input signal to the translator pursuant to § 74.1231 (f) shall be type accepted and shall meet the following specifications for type acceptance by the Commission:

(1) The local oscillator or oscillators employed in the exciter, when subjected to variations in ambient temperature between minus 30° and plus 50° centigrade,

and in primary supply voltage between 85 percent and 115 percent of the rated value, shall be sufficiently stable to maintain the output center frequency of the exciter within plus or minus 0.005 percent of the frequency assigned to the primary station.

(2) Automatic means shall be provided for limiting the level of the audio frequency voltage applied to the modulator to insure that a frequency swing in excess of 75 kHz will not occur under any condition of modulation.

(3) Wiring, shielding, and construction shall be in accordance with accepted principles of good engineering practice.

(e) Type acceptance will be granted only upon a satisfactory showing that the apparatus is capable of meeting the requirements of Paragraphs (c) and (d) of this Section. The following procedures shall apply:

(1) Any manufacturer of apparatus intended for use by a station authorized under this subpart may request type acceptance by following the procedures set forth in Part 2, Subpart F, of this Chapter. Equipment found to be acceptable by the Commission will be listed in the "Radio Equipment List" published by the Commission. These lists are available for inspection at any Field Office of the Commission and at the Washington, D.C., offices of the Commission.

(2) Apparatus for use by stations authorized under this subpart which has been type accepted by the Commission will normally be authorized without additional measurements by the applicant.

(3) Other rules concerning type acceptance, including information regarding withdrawal of type acceptance, modification of type accepted equipment and limitations on the findings upon which type acceptance is based, are set forth in Part 2, Subpart J, of this Chapter.

(f) The installation of an FM translator or booster station employing type accepted apparatus may be made by a person with sufficient technical knowledge and skill to correctly follow the manufacturer's instructions.

(g) Simple repairs such as the replacement of tubes, fuses, or other plug-in components and the adjustment of noncritical circuits which require no particular technical skill may be made by an unskilled person. Repairs which require the replacement of attached components, adjustment of critical circuits, or technical measurements, shall be made only by a person with the knowledge and skill to perform such tasks.

(h) Any tests or adjustments which require the radiation of signals for their completion and which could result in improper operation of the apparatus, shall be made by or under the immediate supervision of a licensed first- or second-class radiotelephone operator.

(i) The transmitting antenna may be designed to produce either horizontal or vertical polarization, or a combination of horizontal and vertical polarization. Separate transmitting antennas are permitted if both horizontal and vertical polarization is to be provided.

**§ 74.1251 Equipment changes.**

(a) No change, either mechanical or electrical, except as provided in § 2.584 of this Chapter, may be made in FM translator or booster apparatus which has been type accepted by the Commission without prior authority of the Commission.

(b) Formal application is required for any of the following changes to be made on FCC Forms 346 in the case of FM broadcast translator stations booster stations:

(1) Replacement of the translator or booster as a whole except in those cases where the replacement is an identical translator or booster or is a translator or booster of identical power rating and is listed in the Commission's "Radio Equipment List." The Commission's office in Washington, D.C., and the Engineer in Charge of the radio district in which the translator or booster is located shall be promptly notified of translator or booster replacement made without formal authorization pursuant to the exceptions of this paragraph, giving the manufacturer's name and type number of the new translator or booster, together with a statement certifying that the new installation is operating in accordance with the Commission's rules and the terms of the license or construction permit.

(2) A change in the transmitting antenna system, including the direction of radiation or directive antenna pattern.

(3) Any change in the overall height of the antenna structure except where notice to the Federal Aviation Administration is specifically not required under § 17.14 (b) of this Chapter.

(4) Any change in the location of the translator or booster except a move within the same building or upon the same pole or tower.

(5) Any horizontal change in the location of the antenna structure which would (i) be in excess of 500 feet or (ii) would require notice to the Federal Aviation Administration pursuant to § 17.7 of this Chapter.

(6) Any change of input or output frequency of a translator.

(7) Any change of primary station of a translator.

(8) Any change of authorized transmitter operating power output.

(9) Any change in authorized principal community or area being served.

(c) Other equipment changes not specifically referred to above may be made at the discretion of the licensee: *Provided*, That the Engineer in Charge of the radio district in which the translator or booster is located and the Commission's Washington, D.C., office are notified in writing upon completion of such changes: *And provided further*, That the changes are appropriately reflected in the next application for renewal of license of the FM translator or booster station.

**TECHNICAL OPERATION AND OPERATORS****§ 74.1261 Frequency tolerance.**

(Ed. 3/80)

The licensee of an FM translator station shall maintain the center frequency at the output of the translator within 0.01 percent of its assigned frequency. The output frequency of an FM booster station shall be the exact frequency of its primary station.

**§ 74.1262 Frequency monitors and measurements.**

(a) The licensee of a station authorized under this subpart is not required to provide means for measuring the operating frequency of the transmitter. However, only equipment having the required stability will be approved for use by an FM translator or booster.

(b) In the event that a station authorized under this subpart is found to be operating beyond the frequency tolerance prescribed in § 74.1261, the licensee shall promptly suspend operation of the station and shall not resume operation until the station has been restored to its assigned frequency. Adjustment of the frequency determining circuits of an FM translator or booster shall be made by a qualified person in accordance with § 74.1250 (g).

**§ 74.1263 Time of operation.**

(a) An FM translator is not required to adhere to any regular schedule of operation. However, the licensee of an FM translator is expected to provide a dependable service to the extent that such is within its control and to avoid unwarranted interruptions to the service provided.

(b) If an FM translator station is inoperative for 10 days or more, the licensee shall notify the Engineer in Charge of the radio district in which the station is located promptly, in writing, describing the cause of the inoperation and the steps being taken to place the translator in operation again and shall notify the Engineer in Charge promptly when operation is resumed.

(c) Failure of an FM translator station to operate for a period of 30 days or more, except for causes beyond the control of the licensee, shall be deemed evidence of discontinuance of operation and the license of the station may be cancelled at the discretion of the Commission.

(d) An FM translator shall not be permitted to radiate during extended periods when signals of the primary station are not being retransmitted.

**§ 74.1264 Station inspection.**

The licensee of a station authorized under this subpart shall make the station and the records required to be kept by the rules in this subpart available for inspection by representatives of the Commission.

**§ 74.1265 Posting of station license.**

(a) The station license and any other instrument of authorization or individual order concerning the construction of the station or the manner of operation shall be kept in the station record file maintained by the licensee so as to be available for inspection upon request to any authorized representative of the Commission.



**§ 74.1251 Modification of transmission systems.**

(a) No change, either mechanical or electrical, except as provided in § 2.584 of this chapter, may be made in FM translator or booster apparatus which has been type accepted by the Commission without prior authority of the Commission.

(b) Formal application is required for any of the following changes to be made on FCC Forms 346 in the case of FM broadcast translator stations booster stations:

(1) Replacement of the transmitter as a whole, except replacement with a transmitter of identical power rating which has been type accepted by the FCC for use by FM translator or FM booster stations, or any change which could result in the electrical characteristics or performance of the station. Upon the installation or modification of the transmitting equipment for which prior FCC authority is not required under the provisions of this paragraph, the licensee shall place in the station records a certification that the new installation complies in all respects with the technical requirements of this part and the terms of the station authorization.

(2) A change in the transmitting antenna system, including the direction of radiation or directive antenna pattern.

(3) Any change in the overall height of the antenna structure except where notice to the Federal Aviation Administration is specifically not required under § 17.14(b) of this Chapter.

(4) Any change in the location of the translator or booster except a move within the same building or upon the same pole or tower.

(5) Any horizontal change in the location of the antenna structure which would (i) be in excess of 500 feet or (ii) would require notice to the Federal Aviation Administration pursuant to § 17.7 of this chapter.

(6) Any change of input or output frequency of a translator.

(7) Any change of primary station of a translator.

(8) Any change of authorized transmitter operating power output.

(9) Any change in authorized principal community or area being served.

**[§ 74.1251 headnote and (b) (1) revised; (c) deleted: Eff. 4-30-80; III(80)-1]**

**TECHNICAL OPERATION AND OPERATORS****§ 74.1261 Frequency tolerance.**

The licensee of an FM translator station shall maintain the center frequency at the output of the translator within 0.01% of its assigned frequency. The output frequency of an FM booster station shall be the exact frequency of its primary station.

**§ 74.1262 Frequency monitors and measurements.**

(a) The licensee of a station authorized under this subpart is not required to provide means for measuring the operating frequency of the transmitter. However, only equipment having the required stability will be approved for use by an FM translator or booster.

(b) In the event that a station authorized under this subpart is found to be operating beyond the frequency tolerance prescribed in § 74.1261, the licensee shall promptly suspend operation of the station and shall not resume operation until the station has been restored to its assigned frequency. Adjustment of the frequency determining circuits of an FM translator or booster shall be made by a qualified person in accordance with § 74.1250(g).

**§ 74.1263 Time of operation.**

(a) An FM translator is not required to adhere to any regular schedule of operation. However, the licensee of an FM translator is expected to provide a dependable service to the extent that such is within its control and to avoid unwarranted interruptions to the service provided.

(b) If an FM translator station is inoperative for 10 days or more, the licensee shall notify the Engineer in Charge of the radio district in which the station is located promptly, in writing, describing the cause of the inoperation and the steps being taken to place the translator in operation again and shall notify the Engineer in Charge promptly when operation is resumed.

(c) Failure of an FM translator station to operate for a period of 30 days or more, except for causes beyond the control of the licensee, shall be deemed evidence of discontinuance of operation and the license of the station may be cancelled at the discretion of the Commission.

(d) An FM translator shall not be permitted to radiate during extended periods when signals of the primary station are not being retransmitted.

**§ 74.1264 Station inspection.**

The licensee of a station authorized under this subpart shall make the station and the records required to be kept by the rules in this subpart available for inspection by representatives of the Commission.

**§ 74.1265 Posting of station license.**

(a) The station license and any other instrument of authorization or individual order concerning the construction of the station or the manner of operation shall be kept in the station record file maintained by the licensee so as to be available for inspection upon request to any authorized representative of the Commission.

(b) The call sign of the translator or booster together with the name, address, and telephone number of the licensee or local representative of the licensee if the licensee does not reside in the community served by the translator or booster, and the name and address of a person and place where station records are maintained, shall be displayed at the translator or booster site so the structure supporting the transmitting antenna, so as to be visible to a person standing on the ground at the transmitter site. The display shall be prepared so as to withstand normal weathering for a reasonable period of time and shall be maintained in a legible condition by the licensee.

#### § 74.1266 Operator requirements.

(a) An FM broadcast translator station may be operated only by a person designated by and under the control of the licensee and need not be a licensed operator under Part 13 (Commercial Radio Operators) of the Commission's rules and regulations.

(b) A licensed operator employed to operate an FM translator may, at the discretion of the licensee, be employed for other duties or for the operation of another class of station or stations in accordance with the class of license which he holds and the rules and regulations governing such other stations. However, such duties shall not interfere with the operation of the FM translator station.

#### § 74.1267 Antenna structure, marking and lighting.

The painting and lighting of antenna structures employed by stations licensed under this subpart, where required, will be specified in the authorization issued by the Commission. Section 74.22 and Part 17 of this Chapter set forth the conditions under which painting and lighting will be required and the responsibility of the licensee with regard thereto.

#### § 74.1268 Additional orders.

In cases where the rules contained in this Part do not cover all phases of operation or experimentation with respect to external effects, the Commission may make supplemental or additional orders in each case as may be deemed necessary.

#### § 74.1269 Copies of rules.

The licensee or permittee of a station authorized under this subpart shall have a current copy of Volumes I and III of the Commission's rules and shall make the same available for use by the operator in charge. Each such licensee or permittee shall be familiar with those rules relating to stations authorized under this Subpart. Copies of the Commission's rules may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

### OTHER OPERATING REQUIREMENTS

#### § 74.1281 Station records.

(a) The licensee of a station authorized under this subpart shall maintain adequate station records, including the current instrument of authorization,

official correspondence with the Commission, maintenance records, contracts, permissions for rebroadcast, and other pertinent documents.

(b) Entries required by § 17.49 (a), (b), and (c) of this Chapter concerning the time the tower lights are turned on and off each day if manually controlled, the time the daily check of proper operation of the tower lights was made if automatic alarm system is not provided, and any observed failure of the lighting system. See § 17.47 (a) for daily tower lighting observation or automatic alarm system requirements.

(c) Entries required by § 17.49 (d) of this Chapter concerning quarterly inspections of the condition of the tower lights and associated control equipment; when adjustments, replacement or repairs are made to insure compliance with the lighting requirements; and when towers are cleaned or repainted as required by § 17.50 of this Chapter.

(d) The station records shall be maintained for inspection at a residence, office, public building, place of business, or other suitable place, in one of the communities of license of the translator or booster, except that the station records of a booster or translator licensed to the licensee of the primary station may be kept at the same place where the primary station records are kept. The name of the person keeping station records, together with the address of the place where the records are kept, shall be posted in accordance with § 74.1265 (b) of the rules. The station records shall be made available upon request to any authorized representative of the Commission.

(e) Station logs and records shall be retained for a period of two years.

#### § 74.1283 Station identification.

(a) Every station authorized under this Subpart with transmitter output power of more than 1 watt shall be identified in accordance with the provisions of this section. Stations with transmitter output power of 1 watt or less need not be identified.

(b) FM broadcast booster stations shall be identified by their primary stations by the broadcasting by the primary station of the primary station's call letters and location, in accordance with the provisions of § 73.287 of this Chapter.

(c) FM broadcast translator stations with transmitter output power of more than 1 watt shall be identified by one of the methods prescribed herein:

(1) The licensee or permittee of such station may make arrangements with the licensee of its primary station for the broadcast by the primary station of the call letters and location of the translator station. Identification in this manner is to be accomplished three times each day: Once between the hours of 7 and 9 a.m., unless the primary station's broadcast day begins after 9 a.m., in which case identification will be made at the beginning of its broadcast day and at the other times specified herein; once between 12:55 p.m. and 1:05 p.m.; and once between the hours of 4 and 6 p.m. Arrangements will be made so that the licensee of the primary station will keep on record, and make

available to any responsible person the call letters and location of each translator station rebroadcasting its signals, with the name, address, and telephone number of the licensee or the person designated to be contacted in case of malfunction of the translator. It shall be the responsibility of the translator licensee to furnish current information in this respect to the primary station.

(2) Where the licensee or permittee of an FM translator station has not made arrangements for station identification in accordance with subparagraph (1) of this paragraph, such FM translator station shall transmit its call sign in International Morse Code at least once each 60 minutes during the time the station is in operation. The transmission may be accomplished by means of an automatic device as required by § 74.1250 (c) (7). Call sign transmission shall be made at Code speed not in excess of 20 words per minute. At this speed, the transmission of each individual call sign will require approximately 4 seconds.

(d) The Commission may, in its discretion, specify other methods of identification.

(e) The call sign of an FM broadcast translator station will consist of the initial letter K or W followed by the channel number assigned to the translator and two letters. The use of the initial letter will generally

conform to the pattern used in the broadcast service. The two letter combinations following the channel number will be assigned in order and requests for the assignment of particular combinations of letters will not be considered.

#### § 74.1284 Rebroadcasts.

(a) The term "rebroadcast" means the reception by radio of the programs or other signals of a radio station and the simultaneous retransmission of such programs or signals for direct reception by the general public.

(b) The licensee of an FM translator shall not rebroadcast the programs of any FM broadcast station or other FM translator without obtaining prior consent of the primary station whose programs are proposed to be retransmitted. The Commission shall be notified of the call letters of each station rebroadcast and the licensee of the FM translator shall certify that written consent has been received from the licensee of the station whose programs are retransmitted.

(c) An FM translator is not authorized to rebroadcast the transmissions of any class of station other than an FM broadcast station or another FM translator.